

THE
Gardeners Dictionary.
Containing the METHODS of
CULTIVATING and IMPROVING
ALL SORTS OF *the Morgan's*
TREES, PLANTS, and FLOWERS,
FOR THE
Kitchen, Fruit, and Pleasure Gardens;
AS ALSO
Those which are used in MEDICINE.
WITH
DIRECTIONS for the Culture of VINEYARDS,
and Making of WINE, in *England.*
In which likewise are included
The PRACTICAL PARTS of HUSBANDRY.

Abridged from the last Folio Edition,
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— *Digna manet divini gloria ruris.* Virg. Geor.

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THE Gardeners Dictionary.

VOL. III.

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PADUS, The Bird-cherry, or Cherry-Laurel.

The Characters are;

The Empalement of the Flower is bell-shaped, consisting of one Leaf, which expands at the Brim, where it is slightly cut into five Parts: the Flower is composed of five roundish Petals, which are inserted in the Empalement, and are spread open: in the Centre of the Flower is situated the Pointal, attended by a great Number of Stamina, which are inserted in the Empalement: the Pointal afterward changes to a roundish Berry, inclosing one oval Nut.

The Species are;

1. PADUS glandulis duabus basi foliorum subjectis. Lin. Hort. Cliff. The common Bird-cherry.

2. PADUS foliis ovatis serratis, petiolis rectis, spica florum brevior. The Cornish Cherry.

3. PADUS foliis lanceolatis glabris, vix serratis, fructu nigro. American Bird-cherry.

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4. PADUS foliis sempervirentibus lanceolato-ovatis. Lin. Hort. Cliff. The common Laurel, or Cherry-bay.

5. PADUS foliis sempervirentibus ovatis. Lin. Hort. Cliff. The Portugal Laurel; by some called the Portugal Cherry; and in Portuguese, *Azerira*.

The two first Species have been generally rang'd in the Genus of Cherries, till Dr. Linnæus separated them from that Genus, and added the two last Species to them, and applied this Title of *Padus* to them; which is an old Name given by *Theophrastus* to one of the Species: but the Doctor, in his last Edition of his Method, seems to join these to the Cherries again. But as these produce their Fruit in a long *Thyrse*, or Bunch, I think they may be separated from the Cherry on that Account.

The first Sort is very common in several Parts of England, but parti-

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cularly

cularly in the North, where they grow in the Hedges in great Plenty. This will rise to the Height of eighteen or twenty Feet; but generally sends out a great Number of Shoots from the Bottom, which, if suffered to grow, will form a Thicket, and prevent the upright Growth of the Tree. The Branches of this Tree are generally irregular, and grow very confused; so that it is rarely seen to grow handsome: but when it is mixed with other Shrubs in Wilderness-quarters, it makes an handsome Appearance during the Season of its flowering, which is commonly in the Beginning of *May*: at which time the whole Tree is cover'd with long Spikes of white Flowers; but these have a very strong Scent, which is very disagreeable to many Persons; so there should not be many of them planted too near the Habitation.

The second Sort will rise to a greater Height than the first, and may be trained up with a regular strait Stem, to the Height of twenty Feet, with an handsome regular Head: for the Branches of this Sort are naturally dispos'd in a regular Order. The Flowers of this Sort are produced on shorter Spikes than those of the former Sort; but in other respects are very like them.

The third Sort is a Native of *America*, from whence the Seeds have been brought, and the Plants are now commonly sold in the Nurseries near *London*. It grows plentifully in the Woods in *Carolina*; where the Fruit is particularly esteemed for making Cherry-brandy. This Tree is of middling Growth, and the Branches generally grow very irregular: the Leaves are very smooth, and of a shining Green: the Flowers are produced in long Clusters, like the former Sort; but the Fruit is larger,

and of a shining black Colour when ripe. The Leaves of this Tree remain green until *December*, unless hard Frosts happen early, to decay them. The Wood of this Tree is very beautifully vein'd, for which the Inhabitants of *America* greatly esteem it.

All these Sorts may be propagated by laying down their young Branches in *October*, which, in one Year, will have made good Roots: or they may be grafted upon each other; as also upon the common Cherry-stock: but these grafted Trees never grow to the Size of those which are propagated by Seeds or Layers. But they are seldom propagated by Seeds; because the Birds generally eat them, unless the Fruit are screened from them; and as the most expeditious Method of raising the Plants is by Layers, so that is generally used by the Gardeners near *London*.

The common Laurel is so well known, as to need no Description; it being very common in every Garden. This Tree was brought from *Constantinople* about the Year 1578. and was for many Years kept in Pots and Tubs, and preserv'd in Green-houses in Winter: but afterward it was planted against warm Walls, to preserve it; being frequently injur'd by severe Frost. After this the Plants were trained into Pyramids and Globes; and constantly kept shear'd; by which the broad Leaves were generally cut in the Middle, which rendered the Plants very unsightly. Of late Years they have been more properly disposed in Gardens, by planting them to border Woods, and the Sides of Wilderness-quarters; for which Purpose we have but few Plants so well adapted; for it will grow under the Drip of Trees, in Shade or Sun; and the Branches will spread to the Ground,

Ground, so as to form a Thicket; and the Leaves being large, and having a fine glossy green Colour, they set off the Woods and other Plantations in Winter, when the other Trees have cast their Leaves; and in Summer they make a good Contrast with the Green of the other Trees. This Tree is sometimes injur'd in very severe Winters, especially where they stand single, and are much exposed; but where they grow in Thickets, and are screen'd by other Trees, they are seldom much hurt: for in those Places it is only the young tender Shoots which are injur'd; and there will be new Shoots produced immediately below these, to supply their Place; so that in one Year the Damage will be repaired: but whenever such severe Winters happen, these Trees should not be cut or pruned till after the following *Midsummer*; by which time it will appear what Branches are dead, which may then be cut away, to the Places where the new Shoots are produced: for by hastily cutting these Trees in the Spring, the drying Winds have free Egress to the Branches; whereby the Shoots suffer as much, as they had done by the Frost.

These Trees are also very ornamental, when they are mix'd with other ever-green Trees, in forming Thickets, or to shut out the Appearance of disagreeable Objects: for the Leaves, being very large, make a very good Blind, and are equally useful for screening from Winds; so that when they are planted between flowering Shrubs, they may be trained so as to fill up the Vacancies in the Middle of such Plantations; and will answer the Purpose of screening in the Winter, and shutting out the View thro' the Shrubs in all Seasons: there are also many other Purposes

to which this Tree may be applied, so as to render it very ornamental.

In warmer Countries this Tree will grow to a large Size; so that in some Parts of *Italy* there are large Woods of them; but we cannot hope to have them grow to so large Stems in *England*; for should these Trees be pruned up, in order to form them into Stems, the Frost would then become much more hurtful to them, than in the manner they usually grow, with their Branches to the Ground: however, if these Trees are planted pretty close together, in large Thickets, and permitted to grow rude, they will defend each other from the Frost, and they will grow to a considerable Height: an Instance of which is now in that noble Plantation of ever-green Trees, made by his Grace the Duke of *Bedford*, at *Woodbourn-Abbey*; where there is a considerable Hill, covered intirely with Laurels: and in the other Parts of the same Plantation, there are great Numbers of these intermixed with the other ever-green Trees, where they are already grown to a considerable Size, and make a noble Appearance.

This Tree is commonly propagated by Cuttings, which should be planted in *September*; and in taking off the Cuttings, if a Joint of the former Year's Shoot is cut to the Bottom of each, there will be no Danger of their growing: and these Cuttings will have much better Roots, than those which have only the same Year's Shoot; which, being very soft and tender, do not put out Roots from the Bottom in the same manner as the others; and they frequently miscarry. These Cuttings should be made about fifteen Inches long, or somewhat shorter; and they should be planted seven or eight Inches into the Ground, observing to tread the
Earth

Earth down close to them. These Cuttings should be planted in a soft loamy Soil, not so strong as to detain the Wet, nor so light and dry as to admit the Sun and Wind easily to the lower Part of the Cuttings: in such Soil as this, the Cuttings must be duly watered in the Spring, otherwise they will most of them fail: whereas, in a gentle Loam, scarce one in an hundred will miscarry, and they will make much greater Progress. The common Method of planting these in the Nurseries is, to lay out the Ground into Beds, about four Feet broad, with two Feet Alleys between them, for the Conveniency of going between them to water them in dry Weather; and in these Beds they plant the Cuttings about five or six Inches asunder: but where there is a loamy Soil, it will be a better Method to plant the Cuttings in Rows, about a Foot or fifteen Inches asunder, and at six Inches Distance in the Rows: in this Method the Cuttings will have more room to grow, and there will be room to hoe between them in Summer, to keep them clean from Weeds; and when they are removed, they may be taken up without injuring any of the Plants, which cannot be avoided where they are very close together.

There are some Persons who propagate these Trees from their Berries, which is certainly the best Way to obtain good Plants; for those which come from Seeds, have a Disposition to an upright Growth; whereas almost all those which are raised from Cuttings, incline more to an horizontal Growth, and produce a greater Number of lateral Branches. When any Person is desirous to propagate this Tree by Seeds, the Berries must be guarded from the Birds, otherwise they will devour them before they are per-

fectly ripe; which is seldom earlier than the Latter-end of *September*, or the Beginning of *October*; for they should hang until the outer Pulp is quite black. When these Berries are gathered, they should be sown soon after; for when they are kept out of the Ground till Spring, they frequently miscarry; and there will be no Hazard in sowing them in Autumn, provided they are put in a dry Soil: and if the Winter should prove severe, the Bed in which they are sown is covered with rotten Tan, Straw, Peas-haulm, or any light Covering, to prevent the Frost from penetrating of the Ground. The best Way will be to sow the Berries in Rows at about six Inches Distance, and one Inch asunder in the Rows: if Drills are made about three Inches deep, and the Berries scattered in them, and the Earth drawn over them, it will be a very good Method. The following Spring the Plants will appear, when they should be kept clean from Weeds; and if the Season should prove dry, if they are duly watered, the Plants will make so good Progress, as to be fit for transplanting the following Autumn, when they should be carefully taken up, and planted in a Nursery, placing them in Rows at three Feet asunder, and the Plants one Foot Distance in the Rows. In this Nursery they may remain two Years; by which time they will be fit to transplant where they are designed to remain.

The best Season for transplanting these Plants is in the Autumn, as soon as the Rain has prepared the Ground for Planting; for altho' they often grow, when removed in the Spring, yet those do not take near so well, nor make so good Progress, as those which are removed in the Autumn; especially if the Plants

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are taken from a light Soil, which generally falls away from their Roots : but if they are taken up with Balls of Earth to their Roots, and removed but a small Distance, there will be no Danger of transplanting them in the Spring, provided it is done before they begin to shoot ; for as these Plants will shoot very early in the Spring, so if they are removed after they have shot, the Shoots will decay ; and many times the Plants intirely fail.

There are some Persons who, of late, have banished these Plants from their Gardens, as supposing them possessed of a poisonous Quality ; because the distilled Water has proved so in many Instances : but however the distilled Water may have been found destructive to Animals, yet from numberless Experiments, which have been made both of the Leaves and Fruit, it hath not appeared, that there is the least hurtful Quality in either ; so that the Whole must be owing to the Oil, which may be carried over in Distillation.

The Berries have been long used to put into Brandy, to make a sort of Ratafia ; and the Leaves have also been put into Custards, to give them an agreeable Flavour : and altho' these have been for many Years much used, yet there hath been no one Instance of their having done the least Injury : and as to the Berries, I have known them eaten in great Quantities, without Prejudice.

There are some Persons who have grafted the Laurel upon Cherry-stocks, with Design to enlarge the Trees ; but altho' they will take very well upon each other, yet they seldom make much Progress when either the Laurel is grafted on the Cherry, or the Cherry upon the Laurel ; so that it is only a thing of Curiosity, attend-

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ed with no real Use : and I would recommend to Persons, who have this Curiosity, to graft the Laurel upon the *Cornish* Cherry, rather than any other Sort of Stock, because the Graft will unite better with this ; and as it is a regular Tree, and grows large, so it will better answer the Purpose of producing large Trees.

The *Portugal* Laurel has not been very long cultivated in the *English* Gardens, nor is it, as yet, become common here ; but it deserves to be propagated as much as any of the ever-green Trees ; for the Leaves have a most beautiful shining Verdure, and, in *June*, the Trees are covered with long Spikes of white Flowers, which, together with the bright-red Bark of the young Shoots, make a very beautiful Appearance : and in the Autumn, when the Berries ripen, they likewise make a goodly Shew ; and what renders this Tree more valuable is, its being so very hardy, as to defy the severest Cold of this Country : for in the hard Frost of the Year 1740. when almost every other ever-green Tree and Shrub was severely pinched, these Trees retained their Verdure, and seemed to have felt no Injury.

This will grow to the Height of ten or twelve Feet in *England* (but probably, in their native Country, they may be much larger) ; but I have not seen any which are higher here : they generally send out their Branches near the Ground, and form large spreading Heads ; but they may be trained up with Stems, especially such Plants as are produced from the Berries, which are more disposed to grow upright, than those which are propagated from Cuttings : therefore where the Berries can be procured in Plenty, I would recommend the propagating these Trees
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from them, rather than by the Cuttings: and as there are many Trees in England, which produce the Berries in plenty, so, if they are carefully guarded from the Birds, there may be soon plenty of the Berries in England.

These Berries must be managed in the same way as hath been before directed for the common Laurel; and if it is propagated by Cuttings, they should be treated in the same manner as the common Laurel.

This Tree delights in a gentle loamy Soil, which is not too wet, nor over-dry; tho' it will grow upon almost any Soil; but the Plants do not make so great Progress, nor appear so beautiful, when planted in a very dry Soil, or in Ground that is too wet. The time of transplanting this is the same as for the common Laurel.

PÆONIA, The Peony.

The Characters are;

It hath a Flower compos'd of several Leaves, which are placed orbicularly, and expand in form of a Rose; out of whose Empalement rises the Pointal, which afterward becomes a Fruit, in which several little Horns, bent downward, are gather'd, as it were, into a little Head, covered with Down, opening lengthwise, containing many globulous Seeds.

The Species are;

1. *PÆONIA folio nigricante splendido, quæ mas.* C. B. P. The Male Peony.

2. *PÆONIA mas major, flore incarnato.* Hort. Eyst. The greater Male Peony, with a flesh-coloured Flower.

3. *PÆONIA communis vel fœmina.* C. B. P. The Female Peony.

4. *PÆONIA fœmina, flore pleno rubro majore.* C. B. P. Female Peony, with a large double red Flower.

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5. *PÆONIA pleno flore rubro, minor.* J. B. Peony with a lesser double red Flower.

6. *PÆONIA flore exalbido pleno, major.* C. B. P. Greater Peony, with a double whitish Flower.

7. *PÆONIA Lusitanica, flore simplici odorato.* Inst. R. H. Portugal Peony, with a single sweet-scented Flower.

8. *PÆONIA mas, foliorum segmentis amplioribus.* C. B. P. Male Peony, with Leaves having broader Segments.

9. *PÆONIA tenuius laciniata, subtus pubescens, flore purpureo.* C. B. P. Peony with narrow jagged Leaves, which are downy underneath, and a purple Flower.

10. *PÆONIA aquilinæ foliis.* C. B. P. Peony with a Columbine-leaf.

11. *PÆONIA flore variegato.* C. B. P. Peony with a strip'd Flower.

12. *PÆONIA folio subtus incano, flore albo vel pallido.* C. B. P. Peony with Leaves hoary underneath, and white or pale Flowers.

The first of these Sorts is chiefly propagated for the Roots, which are us'd in Medicine; for the Flowers, being single, do not afford near so much Pleasure as those with double Flowers, nor will they abide near so long in Beauty.

The second Sort hath larger single Flowers than the first; but they are of a paler Colour: this is preserv'd by Persons who are curious in collecting the various Kinds of Flowers; but is not so much esteem'd as those with double Flowers.

All the Sorts with double Flowers are preserv'd in curious Gardens for the Beauty of their Flowers; which, when intermix'd with other large-growing Plants in the Borders of large Gardens, will add to the Variety; and the Flowers are very ornamental

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namental in Basins or Flower-pots, when plac'd in Rooms.

They are all extremely hardy, and will grow in almost any Soil or Situation, which renders them more valuable; for they will thrive under the Shade of Trees; and in such Places they will continue much longer in Beauty.

They are propagated by parting their Roots, which multiply very fast. The best Season for transplanting them is toward the Latter - end of *August*, or the Beginning of *September*; for if they are remov'd after their Roots have shot out new Fibres, they seldom flower strong the succeeding Summer.

In parting of these Roots, you should always observe to preserve a Bud upon the Crown of each Off-set, otherwise they will come to nothing; nor should you divide the Roots too small (especially if you have regard to their blowing the following Year); for when their Off-sets are weak, they many times don't flower the succeeding Summer, or at least produce but one Flower upon each Root: but where you would multiply them in Quantities, you may divide them as you please, provided there be a Bud to each Off-set; but then they should be planted in a Nursery-bed, for a Season or two, to get Strength, before they are plac'd in the Flower-garden.

The single Sorts may be propagated from Seeds (which they generally produce in large Quantities, where the Flowers are permitted to remain); which should be sown in the middle of *August* upon a Bed of fresh light Earth, covering them over about half an Inch thick with the same light Earth: the Spring following the Plants will come up; when they should be carefully cleared from Weeds, and in very dry Weather refresh'd with

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Water, which will greatly forward their Growth. In this Bed they should remain two Years before they are transplanted, observing in Autumn, when the Leaves are decay'd, to spread some fresh rich Earth over the Beds about an Inch thick, and constantly to keep them clear from Weeds.

When you transplant them (which should be done in *September*), you must prepare some Beds of fresh light Earth, which should be dug, and well clean'd from the Roots of all noxious Weeds; then plant the Roots therein six Inches asunder, and about three Inches deep. In these Beds they may remain until they flower; after which they may be transplanted where you design they should grow. It is very probable there may be some Varieties obtain'd from the Seeds of these Plants, as is common in most other Flowers; so that those which produce beautiful Flowers may be plac'd in the Flower-garden; but such as continue single or ill-colour'd, may be planted in Beds to propagate for medicinal Use.

The *Portugal* Peony may also be propagated either by Seeds, or parting of the Roots, in the same manner as the other Sorts; but should have a lighter Soil, and a warmer Situation. The Flowers of this Kind are single; but smell very sweet; which renders it worthy of a Place in every good Garden.

The four Sorts last-mentioned are not so common in the *English* Gardens at present, as those before enumerated; but they are equally hardy, and may be propagated in the same manner.

PALIURUS, Christ's Thorn.

The Characters are;

It hath long sharp Spines: the Flower consists of five Leaves, which expand in form of a Rose: out of the Flower-cup (which is divided into several

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several Segments) rises the Pointal, which becomes a Fruit shap'd like a Bonnet, having a Shell almost globular, which is divided into three Cells, in each of which is contain'd one roundish Seed.

We have but one Species of this Plant; viz.

PALIURUS. *Dod.* Christ's Thorn.

This Plant is ranged in the Genus of *Rhamnus* by Dr. *Linnaeus*, who has also joined the *Frangula* of *Tournefort*, the *Alaternus* and *Ziziphus*, to the same Genus; but if the Fruit of these Plants are admitted as a characteristic Note in distinguishing the Genera, these cannot be brought together.

This is by many Persons suppos'd to be the Plant from which the Crown of Thorns, which was put upon the Head of our Saviour, was compos'd: the Truth of which is supported by many Travellers of Credit, who affirm, that it is one of the most common Shrubs in the Country of *Judea*; and from the Pliableness of its Branches, which may be easily wrought into any Figure, it may afford a Probability.

This Shrub grows wild in most Parts of the *Levant*, as also in *Italy*, *Spain*, *Portugal*, and the South of *France*, especially near *Montpelier*, from whence their Seeds may be procured; for they do not ripen in *England*. These Seeds should be sown as soon as possible, after they arrive, in a Bed of light Earth, and the Plants will come up the following Spring: but when the Seeds are kept out of the Ground till Spring, they will not come up till the next Year, and very often fail: therefore it is much the best way to sow them in the Autumn. These Seedling-plants may be transplanted the following Season into a Nursery to get

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Strength, before they are planted out for good.

It may also be propagated by laying down its tender Branches in the Spring of the Year; which, if carefully supply'd with Water in dry Weather, will take Root in a Year's time, and may then be taken off from the old Plants, and transplanted where they are to remain.

The best time for transplanting this Plant is in the Autumn, soon after the Leaves decay, or the Beginning of *April*, just before it begins to shoot, observing to lay some Mulch upon the Ground about their Roots to prevent them from drying, as also to refresh them now-and-then with a little Water, until they have taken fresh Root, after which they will require but very little Care. They are very hardy, and will grow to be ten or twelve Feet high, if planted in a dry Soil, and a warm Situation. There is little Beauty in this Plant; but it is kept in Gardens as a Curiosity.

PALMA, The Palm-tree.

The Characters are;

It hath a single unbranch'd Stalk: the Leaves are dispos'd in a circular Form on the Top, which when they wither, or fall off with Age, new ones always arise out of the middle of the remaining ones; among which, certain Sheaths or Spikes break forth, opening from the Bottom to the Top, very full of Flowers, and Clusters of Embryoes.

The Species are;

1. **PALMA major.** *C. B. P.* The greater Palm, or Date-tree.

2. **PALMA minor.** *C. B. P.* The Dwarf Palm, with prickly Footstalks.

3. **PALMA Brasiliensis prunifera,** *folio plicatili seu flabelliformi, caudice squamato.* *Raii Hist.* The Palmetto-tree.

4. **PALMA**

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4. PALMA *altissima non spinosa, fructu pruniformi minore racemoso sparso*. Sloan. Cat. The Cabbage-tree.

5. PALMA *foliorum pediculis spinosis, fructu pruniformi luteo oleoso*. Sloan. Cat. The oily Palm-tree.

6. PALMA *tota spinosa major, fructu pruniformi*. Sloan. Cat. The great Macaw-tree.

7. PALMA *humilis dactylifera, radice repentissima sobolifera, folio flabelliformi, pedunculo vix spinoso*. Boerb. Ind. The Dwarf Palm, with scarce any Prickles upon the Footstalks.

8. PALMA *foliis longissimis pendulis, absque ullo pedunculo ex caudice glabro enatis*. Boerb. Ind. The Dragon-tree.

9. PALMA *Japonica, spinosis pediculis, polypodii folio*. Par. Bat. The Palm-tree from Japan, with prickly Footstalks, and a Leaf like Polypody.

10. PALMA *cujus fructus sessilis Faufel dicitur*. C. B. P. The Palm-tree, whose Fruit is called Faufel.

11. PALMA *altissima non spinosa, fructu oblongo*. Houst. The tallest smooth Palm-tree, with oblong Fruit, called Mountain Cabbage.

12. PALMA *coccifera, complicato folio, fructu minore*. H. L. The nut-bearing Palm, with a folded Leaf, and smaller Fruit.

13. PALMA *Malabarica, flosculis stellatis, fructu longo squamato*. Plum. Palm-tree of Malabar, with small starry Flowers, and a long scaly Fruit.

14. PALMA *dactylifera, fructu acerrimo*. Plum. Date-bearing Palm-tree, with a sharp Fruit.

15. PALMA *montana Malabarica, folio magno complicato acuto, flore albo racemoso, fructu rotundo*. Plum. Mountain Palm-tree of Malabar, with a large sharp folded Leaf, white

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Flowers growing in Bunches, and a round Fruit.

16. PALMA *prunifera Japonensis*. H. L. B. Plum-bearing Palm of Japan.

17. PALMA *dactylifera & vinifera*. Plum. Date and wine-bearing Palm-tree.

18. PALMA *dactylifera aculeata minima*. Plum. The least prickly date-bearing Palm-tree.

19. PALMA *coccifera, costarum lateribus aculeatis*. Plum. Nut-bearing Palm-tree, with Spines growing on the Stalks.

20. PALMA *dactylifera latifolia*. Plum. Broad-leav'd date-bearing Palm-tree.

21. PALMA *Indica coccifera angulosa*. C. B. P. The Cocoa-nut, vulgo.

The tenth Sort here mentioned is a Native of the *East-Indies*: the Fruit of this Kind is directed by the College of Physicians to be used in Medicine; but it is rarely brought to England. The eleventh Sort was discovered by the late Dr. *Houfoun*, growing on the Hills near *La Vera Cruz*: the Fruit of this Kind is about an Inch and an half in Length, and near two Inches in Circumference. The Flower-buds, which are produced in the Centre of the Plants, are by the Natives cut, and boiled to eat with their Meat, and are by them call'd the Mountain Cabbage.

The twelfth Sort grows plentifully in several Parts of the *Spanish West-Indies*, from whence I have received the Fruit. These Fruit are shap'd exactly like the Cocoa-nut, and are inclos'd in a Shell in the same manner as that; but these are not so large as a Man's Fist, whereas the Cocoa-nuts are larger than a Man's Head.

The thirteenth, fourteenth, sixteenth, seventeenth, eighteenth, and

nine-

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nineteenth Sorts grow in several Places in the *East* and *West-Indies*; for by the several Writers they are mentioned to grow in the *East*, and I have receiv'd Fruit of all these Sorts from the *West-Indies*.

These Plants may be easily produced from the Seeds (provided they are fresh); which should be sown in Pots fill'd with light rich Earth, and plunged into an Hot-bed of Tanners Bark; which should be kept in a moderate Temper, and the Earth frequently refresh'd with Water.

When the Plants are come up, they should be each planted into a separate small Pot fill'd with the same light rich Earth, and plunged into an Hot-bed again, observing to refresh them with Water, as also to let them have Air in proportion to the Warmth of the Season, and the Bed in which they are placed. During the Summer-time they should remain in the same Hot-bed; but in *August* you should let them have a great Share of Air to harden them against the Approach of Winter; for if they are too much forc'd, they will be so tender as not to be preserv'd thro' the Winter without much Difficulty, especially if you have not the Conveniency of a Bark stove to keep them in.

The Beginning of *October* you must remove the Plants into the Stove, placing them where they may have a great Share of Heat (these being somewhat tenderer, while young, than after they have acquir'd some Strength); tho' indeed they may be sometimes preserv'd alive in a cooler Situation, yet their Progress would be so much retarded, as not to recover their Vigour the succeeding Summer. Nor is it worth the Trouble of raising these Plants from Seeds, where a Person has not the Conveniency of a good Stove to for-

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ward their Growth; for where this is wanting, they will not grow to any tolerable Size in eight or ten Years.

Whenever these Plants are remov'd (which should be done once a Year), you must be very careful not to cut or injure their large Roots, which is very hurtful to them; but you should clear off all the small Fibres which are inclinable to Mouldiness; for if these are left on, they will in time decay, and hinder the fresh Fibres from coming out, which will greatly retard the Growth of the Plants.

The Soil in which these Plants should be planted, must be compos'd in the following manner; *viz.* A third Part of fresh light Earth taken from Pasture-ground; a third Part Sea-sand; and the other Part rotten Dung, or Tanners Bark: these should be carefully mixed, and laid in an Heap three or four Months at least before it is used; but should be often turn'd over, to prevent the Growth of Weeds, and to sweeten the Earth.

You should also observe to allow them Pots proportionable to the Sizes of the Plants; but you must never let them be too large, which is of worse Consequence than if they are too small. During the Summer-season they should be frequently refreshed with Water; but you must be careful not to give it in too great Quantities; and in Winter they must be now-and-then refreshed, especially if they are placed in a warm Stove; otherwise they will require very little Water at that Season.

These Plants are most of them very slow Growers, even in their native Countries, notwithstanding they arrive to a great Magnitude; for it has been often observed by several

veral of the old Inhabitants of those Countries, that the Plants of some of these Kinds have not advanced two Feet in Height in twenty Years; so that when they are brought into these Countries, it can't be expected they should advance very fast, especially where there is not due Care taken to preserve them warm in Winter: but however slow of Growth these Plants are in their native Countries, yet they may be with us greatly forwarded, by placing the Pots into an Hot-bed of Tanners Bark; which should be renewed as often as is necessary, and the Plants always preserved therein both Winter and Summer, observing to shift them into larger Pots as they advance in Growth, as also to supply them with Water: in which Management I have had several of them come on very fast; for I observe the Roots of these Plants are very apt to root into the Bark, if their Pots remain a considerable time without shifting, where they meet with a gentle Warmth; and the Moisture arising from the Fermentation of the Bark doth preserve their Fibres plump and vigorous.

The Date-palm is of very slow Growth with us; but is easily produced from Seeds taken out of the Fruit, which are brought into *England* in great Plenty; but there are very few of these Plants of any considerable Size at present in the *English* Gardens.

The Dwarf Palm, with prickly Footstalks, as also that with few Prickles, are of humble Growth in their native Countries, seldom rising above four or five Feet high; but extend their Roots very far, and increase thereby in the same manner as the common Fern doth; so that the waste Ground, which is not cultivated, is over-run with the Plants;

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the Leaves of which the Inhabitants cut, and send into these Countries to make Flag-brooms. These grow in *Spain*, *Portugal*, and *Italy*; and are much hardier than any of the other Sorts.

The Palmetto-tree is brought from the *West-Indies*, where it grows to be a very large Tree; the Leaves of which the Inhabitants thatch their Houses withal; for which Purpose they are very useful in those Countries. The Leaves, before they are expanded, are cut, and brought into *England* to make Womens plaited Hats, which were, a few Years since, greatly in Fashion; and the Berries of these Trees were formerly much in Use in *England* for Buttons. These were some of the chief Commodities which the *Bermuda-Islands* did afford for Manufactory; but, at present, they are both disus'd in *England*.

The Cabbage-tree is very common in the *Caribbee-Islands*, where it grows to a prodigious Height: *Ligon*, in his *History of Barbados*, says, There are some of these Trees above two hundred Feet high, and that it is commonly an hundred Years before they arrive at Maturity enough to produce Fruit: the Leaves of this Tree envelope each other; so that those which are inclos'd, being deprived of the Air, are blanch'd, which is the Part the Inhabitants cut for Plait for Hats, &c. and the *Gemmae*, or young Shoots, are pickled, and sent into *England*, by the Name of *Cabbage*: but whenever this Part is cut out, the Trees are destroyed; nor do they rise again from the old Roots; so that there are very few Trees left remaining near Plantations, except for Ornament; for their Stems being exceeding strait, and their Leaves being produced very regularly at Top, afford a most

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beautiful Prospect ; for which Reason the Planters generally spare two or three of them near their Habitations.

The oily Palm grows in great Plenty on the Coast of *Guiney*, as also on *Cape Verd* Island, where they grow as high as the Main-mast of a Ship : but these Trees have been transplanted to *Jamaica* and *Barbados*, in both which Places they thrive very well. The Inhabitants make an Oil from the Pulp of the Fruit, and draw a Wine from the Body of the Trees, which inebriates ; and with the Rind of these Trees they make Mats to lie upon. This Sort will easily rise from Seeds ; and, if kept warm, will grow much faster than the Date-palm.

The Macaw-tree is very common in the *Caribbee-Islands*, where the *Negroes* pierce the tender Fruit, from whence flows out a pleasant Liquor, of which they are very fond ; and the Body of the Tree affords a solid Timber, with which they make Javelins, Arrows, &c. and is by some supposed to be a sort of Ebony. This Tree grows very slow, and requires to be kept very warm in Winter.

The Dragon-tree is very common in the *Madeira's*, and the *Canary-Islands*, where they grow to be large Trees ; from the Bodies of which it is supposed the Dragon's Blood doth flow. This Plant arises very easily from the Seeds ; and, when it has acquired some Strength, is pretty hardy.

The *Japan* Palm-tree is, at present, very rare in *England*, being only in two or three curious Gardens : it will come up from Seeds, if they are fresh : but the Plants must be kept very warm, especially while young, otherwise they will not live thro' our Winters.

The Cocoa-nut is cultivated in most of the inhabited Parts of the *East* and *West-Indies* ; but is suppo-

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fed a Native of the *Maldives*, and the desert Islands of the *East-Indies* : from whence it is supposed it hath been transported to all the warm Parts of *America* ; for it is not found in any of the inland Parts, nor any-where far distant from Settlements. It is one of the most useful Trees to the Inhabitants of *America*, who have many of the common Necessaries of Life from it. The Bark of the Nut is made into Cordage, the Shell of the Nut into Drinking-bowls ; the Kernel of the Nut affords them a wholesome Food ; and the Milk contained in the Shell, a cooling Liquor. The Leaves of the Trees are used for thatching their Houses, and are also wrought into Baskets, and most other things which are made of Osiers in *Europe*.

This Tree is propagated by planting of the Nuts, which in six Weeks or two Months after planting will come up, provided they are fresh, and thoroughly ripe, which is what few of them are, which are brought to *England* ; for they always gather them before they are ripe, that they may keep during their Passage : so that the best Way to bring the Nuts to *England* for Planting, would be to take such of them as are fully ripe, and put them up in dry Sand in a Tub, where the Vermin may not come to them ; and these will often sprout in their Passage, which will be an Advantage, because then they may be immediately planted in Pots of Earth, and plunged into the Bark-bed.

These Plants in the hot Islands of *America* make considerable Progress in their Growth ; in which Places there are some Trees of very great Magnitude : but in *Europe* this Plant is of much slower Growth, being many Years before it advances to any considerable Height : but as the young

young Leaves of these Plants are pretty large, they make a good Appearance amongst other tender Exotic Plants, in one or two Years time. This Plant is preserved in some curious Gardens in *England*, for Variety, where it must be placed in the Bark-stove, and managed as hath been directed for the other Kinds of Palms; observing, as often as they are transplanted, not to cut their strong Roots; which is generally Death to most of the Palm-kind. These Plants must not be too much confined in their Roots; for if they are, they will make but little Progress: therefore, when the young Plants have filled the Pots with their Roots, they should be shifted into Tubs of a moderate Size, that their Roots may have room to extend: but these Tubs must be kept constantly plunged into the Bark-bed, otherwise the Plants will not thrive. The Method of raising these Plants from the Nuts, when they are planted before they have sprouted, is fully described under the Article of raising Exotic Seeds.

All the Sorts of Palm-trees are Male and Female, in different Trees; and it hath been always supposed necessary, that the two should grow near each other, that the Male Tree might impregnate the Female, in order to render the Female fruitful: and where it has so happened, that a Female Tree grew singly, it has been asserted, that the Inhabitants have carried Branches of the Male Flowers, taken from Trees which grew at a Distance, and have fastened them to the Female Trees, without which they have insisted, that the Female Trees would not produce any Fruit: but this is refuted by Father *Labat*, who affirms that he knew a single Tree of the date-bearing Palm, which grew by the Side

of an antient Convent in *Martinico*, which produc'd a large Quantity of fair Fruit annually; tho' there was not any other Palm-tree which grew within two Leagues of this: but he also affirms, that the Stones of these Dates would not grow; for they had planted many of them for several Years successively, without ever raising a single Plant; and were afterwards obliged to procure some Dates from *Barbary*, in order to propagate them: so that he conjectured, that all the Female Trees may produce Fruit, which may appear very fair to the Eye; but, upon Examination, they will be found to want the Germ or Bud, which is the Embryo of the future Plant.

This may account for the Fruit of the different Sorts of Palms not growing when they are brought to *England*; for if they are gathered from a Tree growing singly, having no Male Tree near it to impregnate the Ovary, it may be the true Cause why they do not succeed: therefore those Persons who collect these Fruit to propagate them, should always observe to take them from such Trees as grow in the Neighbourhood of the Male.

All the Sorts of Palms are worthy of being preserved by those who are curious in maintaining Exotic Plants, for the singular Structure of their Parts, and Beauty of their Leaves, which make an agreeable Variety amongst other curious Plants.

PANCRATIUM, Sea-daffodil.

The Characters are;

It hath a tubulous lily-shaped Flower, consisting of one Leaf, which is deeply cut into six Parts: in the Middle is a Cup, which is bell-shaped and six-cornered, having a Chive proceeding from each Corner; and is joined thereto as a Part of the Cup, being of the same Colour at Bottom; but the

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Part immediately under the Apex is green: in the Centre rises the Pointal, which extends beyond the Chives: the Empatement afterward becomes a roundish Fruit, which is triangular, and divided into three Parts, containing many flat or roundish Seeds.

The Species are;

1. *PANCRATIUM Monspesulanum, multis Scilla alba parva.* J. B. Sea-daffodil of Montpellier, by many called, The lesser-white Squill.
2. *PANCRATIUM floribus rubris.* Lob. Pan. Sea-daffodil with red Flowers.
3. *PANCRATIUM Illyricum, floribus albis.* Sea-daffodil of Illyricum, commonly called, The third Narcissus of Matthiolum.
4. *PANCRATIUM Americanum, floribus niveis, odore balsami Peruviani.* American Sea-daffodil, with snowy Flowers, smelling like the Balsam of Peru.
5. *PANCRATIUM Americanum, foliis latissimis, floribus niveis majoribus, odore balsami Peruviani.* American Sea-daffodil, with very broad Leaves, and large snowy Flowers, smelling like the Balsam of Peru.
6. *PANCRATIUM alterum vernum Indicum.* J. B. Another Indian Sea-daffodil of the Spring.
7. *PANCRATIUM Zeylanicum, flore albo odorato.* Sea-daffodil of Ceylon, with white sweet-smelling Flowers.

The first Sort is very common on the Sea-coasts of the Mediterranean, where it grows in the Sands: it also grows plentifully on the Sea-shore at Minorca; from whence I have received the Roots and Seeds: this Sort flowers in England the Beginning of August; and the green Leaves remain all the Winter; so that the best time to transplant the Roots is in the Spring, as soon as the Leaves decay: but this Sort should not be often removed; for that will prevent their Flowering.

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The second is a Variety of the first, differing only in the Colour of its Flower.

The third Sort grows plentifully on the Sands near Naples, and in Sicily; as also in several Islands of the Archipelago, but particularly in Zant, where all the Ditches are stored with it.

These Plants are very hardy in respect to Cold, and may be propagated by Off-sets from the Roots; for tho' the third Sort will produce ripe Seeds in England, yet, as the Seedling-plants are many Years before they come to flower, they are seldom propagated that way. These Roots should be transplanted in July, after the Leaves and Flower-stems are decayed: they should be planted in an East Border, where they will thrive very well, and continue longer in Flower, than when they are more exposed to the Sun: but in every other respect they may be treated as hath been directed for the better Sort of Narcissus.

The other four Sorts are very tender, and will not live in England, unless they are preserved in the warmest Stoves. These may be procured from the Countries of their natural Growth, from whence their Bulbs may be easily brought, if they are taken out of the Ground when their Leaves begin to decay; and after drying them in the Shade, they should be put up in Nets or Bags, and hung up, that the Vermin may not come to them.

The fourth Sort is very common in Jamaica, and most of the Islands of America. The fifth Sort was brought from the Bahama-Islands. The sixth is very common in the Spanish West-Indies: and the seventh is a Native of the Island of Ceylon.

All these Plants increase by Off-sets from their Roots, and flower

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extremely well, if they are planted in Pots filled with light rich Earth, and plunged into the Bark-bed in the Stove, and managed as hath been directed for the tender Sorts of *Amaryllis*.

PANSIES. *Vide Viola Tricolor.*

PANICUM, Panic.

The Characters are ;

It is a Plant of the Millet-kind, differing from that, by the Disposition of the Flowers and Seeds ; which, of this, grow in a close thick Spike.

The Species are ;

1. PANICUM *Germanicum, five panicula minore flava. C. B. P.* Yellow German Panic, with a smaller Spike.

2. PANICUM *Germanicum, five panicula minore alba. C. B. P.* White German Panic, with a smaller Spike.

3. PANICUM *Germanicum, five panicula minore purpurea. C. B. P.* Purple German Panic, with a smaller Spike.

4. PANICUM *Italicum, five panicula majore. C. B. P.* Italian Panic, with a larger Spike.

5. PANICUM *Indicum, spica obtusa cœrulea. C. B. P.* Indian Panic, with a blue obtuse Spike.

6. PANICUM *Indicum, spica longissima. C. B. P.* Indian Panic, with a very long Spike.

7. PANICUM *Americanum, spica obtusa brevi. Inst. R. H.* American Panic, with a short obtuse Spike.

8. PANICUM *Americanum, spica longiore acuta. Inst. R. H.* American Panic, with a longer-pointed Spike.

9. PANICUM *Indicum altissimum, spicis simplicibus mollibus, in foliorum alis longissimis pediculis insidentibus. Inst. R. H.* The tallest Indian Panic, with a soft single Spike, which is produced on a long Footstalk from the Wing of the Leaf.

The three first Sorts are only Varieties, which differ in the Colour of the Grain. These are sowed in se-

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veral Parts of *Europe*, in the Fields, as Corn, for the Sustainance of the Inhabitants : but it is reckoned not to afford so good Nourishment as Millet ; however, it is frequently used in some Parts of *Germany*, to make Puddens, Cakes, and Bread. This is not so much esteemed as the *Italian* Sort ; but as it will ripen better in cold Countries than that, it is generally cultivated where a better Sort of Grain will not succeed.

The Seeds of these Sorts may be sown in the Spring, at the same time as Barley is sown, and may be managed exactly in the same Way : but this should not be sown too thick ; for these Seeds are very small, and the Plants grow stronger ; therefore require more room. The *German* Sort doth not grow above three Feet high, unless it is sown on very rich Land ; in which Case it will rise to be four Feet high ; but the Leaves and Stems of this Corn are very large ; so require to stand four or five Inches apart ; otherwise they will grow up weak, and come to little. These large-growing Corns should be sown in Drills at about eighteen Inches apart, so that the Ground may be hoed between the Rows of Corn, to keep them clear from Weeds ; and the stirring of the Ground will greatly improve the Corn. In *July* the Corn will ripen, when it may be cut down and dried ; and then should be housed.

The *Italian* Panic grows much larger than the *German*, and produces much larger Spikes ; so this should be allowed more room to grow, otherwise it will come to little. This is also later before it ripens ; so it is not very proper for cold Countries.

The other Sorts are Natives of very warm Countries, where they are used by the Inhabitants to make

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Bread. These grow very large, and require a good Summer, otherwise they will not ripen in this Country. The Seeds of these Kinds should be sown the Latter-end of *March*, or the Beginning of *April*, on a Bed of light rich Earth, in a warm Situation. They should be sown in Drills about three Feet asunder; and when the Plants come up, they must be kept clear from Weeds, and thinned where they are too close. When the Plants are grown pretty tall, they should be supported by Stakes, otherwise the Winds will break them down: and when the Corn begins to ripen, the Birds must be kept from it, otherwise they will soon destroy it. These Sorts are preserved in some curious Gardens for the sake of Variety; but they are not worth cultivating for Use in *England*.

PAPAVER, Poppy.

The Characters are;

The Flower, for the most part, consists of four Leaves, which are placed orbicularly, and expand in form of a Rose; out of whose Flower-cup (which consists of two Leaves) rises the Pointal, which afterward becomes the Fruit or Pod, which is oval or oblong, and adorned with a little Head; under which, in some Species, is open'd a Series of Holes quite round, into the Cavity of the Fruit, which is defended lengthwise with various Leaves or Plates; to which a great Number of very small Seeds adhere.

The Species are;

1. PAPAVER *hortense*, semine albo, sativum Dioscoridis, album Plinio. C. B. P. Garden Poppy, with white Seeds.

2. PAPAVER *hortense*, semine nigro, sylvestre Dioscoridis, nigrum Plinio. C. B. P. Garden Poppy, with black Seeds.

3. PAPAVER *flore pleno*, rubrum.

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Hort. Eys. Double red Poppy.

4. PAPAVER *flore pleno*, album. C. B. P. Double white Poppy.

5. PAPAVER *flore pleno purpureo*. C. B. P. Double purple Poppy.

6. PAPAVER *pleno flore*, nigrum. C. B. P. Black double-flower'd Poppy.

7. PAPAVER *laciniatis floribus*. C. B. P. Poppy with jagged Flowers.

8. PAPAVER *flore pleno laciniato eleganter striato*. Hort. Ed. Double jagged Poppy, with beautiful striped Flowers.

9. PAPAVER *Orientale hirsutissimum*, flore magno. Tourn. Cor. Very rough oriental Poppy, with a large Flower.

10. PAPAVER *erraticum majus*, sive Dioscoridi, Plinio, Theophrasto. C. B. P. Red Poppy, or Corn-rose.

11. PAPAVER *erraticum majus*, foliis florum variegatis. H. R. Par. Great wild Poppy, whose Flower-leaves are variegated.

12. PAPAVER *erraticum*, flore pleno. C. B. P. Double wild Poppy, commonly called, The Dwarf Poppy.

13. PAPAVER *erraticum*, flore pleno miniato. H. R. Par. Wild Poppy, with a double vermilion-colour'd Flower.

14. PAPAVER *erraticum*, flore pleno igneo. H. R. Par. Wild Poppy, with a double fiery Flower.

15. PAPAVER *erraticum*, flore pleno igneo, marginibus candidis. H. L. Wild Poppy, with a double fiery Flower, edged with White.

16. PAPAVER *erraticum*, flore pleno phæniceo, unguibus albis. H. R. Par. Wild Poppy, with a double purple Flower, and white Bottom.

17. PAPAVER *erraticum minus*. C. B. P. Lesser wild Poppy, or Dwarf Poppy.

18. PAPAVER *luteum perenne*, laciniato folio, Cambro-Britannicum. Raii

Raii Syn. *Welsb*, or Yellow wild Bastard Popny.

The first Sort is cultivated in Gardens for medicinal Use, and is by some supposed to be the Plant from whence the *Opium* is procured: of this there are several Varieties, which chiefly differ in the Colour of their Flowers; but they are no more than feminal Variations; and therefore not worth enumerating in this Place.

The black Poppy grows wild in divers Parts of *England*: the Seeds of this Kind are sold to feed Birds, by the Name of Maw-feed. Of this Sort there are a vast Number of Varieties; some of which produce exceeding large double Flowers of various Colours, and beautifully strip'd: but these are apt to vary from Seed; therefore you should never save the Seeds of any such as are not very double, and well-colour'd; from which you may always expect to have good Sorts produce.

The Oriental Poppy is an abiding Plant, which produces a large single Flower in *May*, which makes a beautiful Appearance: this may be propagated from Seeds, or by parting their Roots: the best time to transplant them is at *Michaelmas*: this must have a light Soil, and a warm Situation.

The red Poppy, or Corn-rose, is never propagated in Gardens; but is very common upon chalky dry Soils in almost every Part of *England*, where the Plants come up amongst the Corn, and are very troublesome: the Flowers of this Kind are brought into the Markets for medicinal Use. There are many Varieties of this Plant with double Flowers, which are cultivated in the Flower-garden; but especially the Dwarf Sort, of which there are some with very double Flowers, which are beautifully edged with White: these are by many Persons sown for Edg-

ings to the large Borders of the Pleasure-garden; tho' I think them no-ways proper for this, since their Flowers are but of a short Duration; and the Plants, when their Seeds are perfected, immediately decay; so that they appear unsightly: besides, where they grow very close, the Flowers are generally small: but if they are sown in Patches upon the Borders, and, when the Plants come up, are thinned out, so as to leave but three or four in each Place, they will flower very well, and look very beautifully.

All the Sorts of Poppies should be sown in Autumn; for, when they are sown in the Spring, the Plants have not time enough to get Strength before the hot Weather causes them to run up to flower; so that their Flowers are never so large or double as those sown in Autumn. When the Plants come up, they should be carefully cleared from Weeds, which is all the Culture they require, except to pull them up where they are too thick; for they thrive better when they are suffered to remain where they were sown, than if they were transplanted: but you should observe to let them have room in proportion to the Growth of the Plants. The Sort first-mentioned grows very large and tall; therefore should be not closer than eight or ten Inches: but the black Sort may stand somewhat nearer; tho' this appears handsomer when the Plants stand single; therefore it is the better way to scatter the Seeds of those which have beautiful Flowers very thin over the Borders of the Flower-garden: and, when the Plants come up, they may be pulled out where they are not well situated, leaving here-and there a Plant, as the other Flowers in the Borders will admit; where, at the Season of their Flower-

ing, they will make a pretty Variety amongst the Flowers: but they are of short Duration; and having an ill Scent, they are less esteemed of late Years, since the Plenty of other more valuable Flowers.

PAPAYER CORNICULATUM. *Vide* Glaucium.

PAPAYER SPINOSUM. *Vide* Argemone.

PAPAYA, Papaw-tree.

The Characters are;

It hath a simple Stalk: the Flowers are Male and Female in different Plants: the Male Flowers (which are barren) are tubulous, consisting of one Leaf, and expand in the Form of a Star: the Female Flowers consist of several Leaves, which expand in form of a Rose, out of whose Flower-cup rises the Pointal, which afterward becomes a fleshy Fruit, shaped like a Cucumber or Melon, containing many small oblong furrow'd Seeds.

The Species are;

1. PAPAYA *fructu melopeponis effigie. Plum.* The Female Papaw-tree, bearing a Fruit like the Melopepo.

2. PAPAYA *fructu maximo, peponis effigie. Plum.* The Female Papaw-tree, bearing a Fruit like the Pumpkin.

3. PAPAYA *mas. Boerb Ind.* The Male Papaw-tree.

These Plants are very common in the *Caribbee Islands*, where they arise from Seeds, and will produce Fruit in eight or ten Months after.

The Fruit is cut before it is ripe, and afterwards sliced, and soak'd in Water until the milky Juice be out, and then boil'd and eaten as Turneps, or baked as Apples; and when ripe, it is eaten as Melons, with Pepper and Sugar, by the Inhabitants of those Countries.

The Flowers of the Male Sort, as also the Fruit of the Female, are pre-

served, and sent over as a Sweetmeat to *Europe*, and are said to be very cooling and cordial.

In *England* these Plants are preserved as Curiosities, by such as delight in Exotics: they are easily raised from the Seeds (which are generally brought from the *West-Indies* in plenty every Year), which should be sown upon an Hot-bed in *February* or *March*; and when the Plants are come up, they should be planted each in a separate small Pot fill'd with rich light Earth, and plunged into a moderate Hot-bed of Tanners Bark, observing to water and shade them until they have taken Root; after which, you should let them have Air in proportion to the Warmth of the Season, by raising the Glasses with Bricks, &c. and you must often refresh them with Water.

When the Plants have grown so as to fill the Pots with their Roots, they must be shaken out of them, preserving the Earth as intire as possible to their Roots, and placed in larger Pots; which should be filled with the same light Earth, and plunged again into the Hot-bed; observing to give them Air and Water, as was before directed: and thus from time to time, as the Plants increase their Stature, you should shift them into larger Pots, which will cause them to be very strong; and if you keep them in the Hot-bed all the Summer, and give them due Attendance, they will rise to six or seven Feet high before Winter.

In *October* they should be placed into a new Hot-bed in the Bark-stove with other tender Exotic Plants, where, during the Winter-season, they must be carefully look'd after, to water and cleanse them well from Vermin and Filth; and the Stove should be kept nearly to the Ana-

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na's Heat, as mark'd on the Botanic Thermometers, in which they will thrive, and retain their beautiful large Leaves all the Winter: and the Male Sort will continue to produce fresh Flowers all that Season, provided you do not keep them too dry. The second Year the Female Sort will flower, and, if duly attended, will perfect the Fruit the following Spring.

These Plants make a very beautiful Appearance (when grow large) amongst other Exotics in the Stove, and deserve a Place in every Collection of rare Plants.

PARIETARIA, Pellitory.

The Characters are;

It hath an apetalous Flower, whose Flower-cup is divided into four Parts; which is sometimes bell-shaped, and at other times shaped like a Funnel, with four Stamina (or Threads) surrounding the Pointal; which Pointal becomes, for the most part, an oblong Seed, surrounded by the Flower-cup: to which may be added, The Flowers are produced from the Wings of the Leaves.

The Species are;

1. PARIETARIA officinarum, & Dioscoridis. C. B. P. Pellitory of the Wall.

2. PARIETARIA minor, ocymi folio. C. B. P. Lesser Pellitory, with a Basil-leaf.

The first of these Plants is supposed to be the true Sort, which is recommended by Dioscorides for medicinal Use: this is the most common in Germany, and some other Countries; but it is very different from that which grows wild in England, which is more like the second Sort, tho' I can't positively affirm it to be the same.

These Plants grow wild upon old Walls and Buildings in great Plenty; but may be cultivated by sowing

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their Seeds in Autumn, upon a dry gravelly or stony Soil; where they will thrive much better than in a rich Soil, and are preferable for Use to those which grow in a moist rich Ground; for though in such Places they will often be very rank, yet they are not near so strongly scented.

PARIS, Herb Paris, True-love, or One-berry.

The Characters are;

The Empalement of the Flower is composed of four Leaves, which expand in form of a Cross; the Flower also hath four Leaves, which spread open in the same manner: in the Centre of the Flower is situated the square Pointal, attended by eight Stamina, each being crown'd with an oblong erect Summit: the Pointal afterward changes to a roundish Berry, having four Cells, which are filled with Seeds.

We know but one Species of this Genus; viz.

PARIS foliis quaternis. Lin. Ver. Herb Paris, True-love, or One-berry.

This Plant grows wild in moist shady Woods, in divers Parts of England, but especially in the Northern Counties; and it is with great Difficulty preserved in Gardens. The only Method to procure it is, to take up the Plants from the Places where they grow wild, preserving good Balls of Earth to their Roots, and plant them in a shady moist Border, where they may remain undisturbed: in which Situation they will live some Years; but as it is a Plant of little Beauty, it is rarely preserved in Gardens.

PARKINSONIA.

The Characters are;

It hath a polypetalous anomalous Flower, consisting of five dissimilar Leaves, from whose Cup arises the Pointal,

Pointal, which afterward becomes a rough jointed Pod; each Knot or Joint containing one kidney-shap'd Seed.

We know but one Species of this Plant; which is,

PARKINSONIA aculeata, foliis minutis, uni costæ adnexis. Plum Nov. Gen. Prickly Parkinsonia, with very small Leaves, fastened to one middle Rib.

This Plant was discover'd by Father Plumier in America; who gave it this Name, in Honour to the Memory of Mr. John Parkinson, who publish'd an universal History of Plants in English, in the Year 1640.

It is very common in the Spanish West-Indies; but of late Years it has been introduced into the English Settlements in America, for the Beauty and Sweetness of its Flowers. This, in the Countries where it grows, naturally rises to be a Tree of twenty Feet high, or more; and bears long slender Bunches of yellow Flowers, which hang down after the same manner as the Laburnum. These Flowers have a most agreeable sweet Scent, so as to perfume the Air to a considerable Distance round about the Trees; for which Reason the Inhabitants of the West-Indies plant them near their Habitations. And though this Plant has not been introduced many Years into the English Settlements, yet it is now become so common in all the Islands, that but few Houses are without some of the Trees near it; for it produces Flowers and Seeds in plenty, in about two Years, from Seed; so that it may soon be made common in all hot Countries: but in Europe it requires a Stove, otherwise it will not live through the Winter.

This Plant is propagated by Seeds, which should be sown in small Pots filled with light fresh Earth early in the Spring; and the Pots must be

plunged into an Hot-bed of Tanner's Bark, where, in about three Weeks or a Month's time, the Plants will come up; when they should be kept clear from Weeds, and frequently refreshed with Water. In a little time these Plants will be fit to transplant; which should be done very carefully, so as not to injure their Roots. They must be each planted into a separate Halfpeny Pot filled with fresh light Earth, and then plunged into the Hot-bed again, observing to stir up the Tan; and if it hath lost its Heat, there should be some fresh Tan added, to renew the Heat again: then the Plants should be screened from the Heat of the Sun, until they have a new Root; after which time they should have fresh Air admitted to them every Day, in proportion to the Warmth of the Season; and they must be constantly supplied with Water every other Day, in warm Weather. With this Management the Plants will grow so fast, as to fill the Pots with their Roots by the Beginning of July: at which time they should be shifted into Pots a little larger than the former, and plunged again into the Bark-bed, provided the Plants are not too tall to remain under the Frame, without Danger of being scorched by the Glasses; in which Case they must be plunged into the Bark-bed in the Stove, where they may have room to grow. But before the Weather becomes cold, it will be the best way to inure the Plants by degrees to bear the open Air, that they may be harden'd before Winter; for if they are kept too warm in Winter, the Plants will decay before the next Spring. The only Method by which I have succeeded in keeping these Plants thro' the Winter, was by hardening them in July and August to bear the open Air; and in September I placed them on

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on Shelves in the dry Stove, at the greatest Distance from the Fire, so that they were in a very temperate Warmth ; and there they retained their Leaves all the Winter, and continued in Health, when those which were placed in a warmer Situation, as also those in the Green-house, were intirely destroyed.

PARNASSIA, Grafs of *Parnassus*.

The Characters are ;

It hath a rose-shaped Flower, consisting of five Leaves, at the Bottom of which are small fringed Leaves, of a greenish Colour, which are placed orbicularly : out of the Flower-cup rises the Pointal, which afterward turns to a membranaceous Fruit, which is oval, having but one Cell, which is filled with Seeds, that, for the most part, adhere to a fourfold Placenta.

The Species are ;

1. *PARNASSIA palustris* & *vulgaris*. *Inf. R. H.* Common Marsh-grafs of *Parnassus*.

2. *PARNASSIA vulgaris*, *flore pleno*. Common Grafs of *Parnassus*, with a double Flower.

The former of these Sorts grows wild in moist Meadows, in several Parts of *England*, but particularly in the North ; but it doth not grow in the Neighbourhood of *London*, any nearer than on the other Side of *Watford*, in the low Meadows by *Cassioberry*, where it is in pretty great Plenty.

The other Sort is an accidental Variety of the former ; which has been discovered wild, and transplanted into Gardens. This is but rarely to be found, being in very few Gardens at present.

These Plants may be taken up from the natural Places of their Growth, with Balls of Earth to their Roots, and planted into Pots filled with pretty strong fresh undung'd Earth, and placed in a shady Situa-

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tion, where, if they are constantly watered, they will thrive very well, and flower every Summer : but if the Plants are planted in the full Ground, it should be in a very moist shady Border, otherwise they will not live ; and these should be as duly watered, as those in the Pots in dry Weather, to make them produce strong Flowers,

They may be propagated by parting of their Roots, which should be done in *March*, before they put out new Leaves : but the Roots should not be divided too small ; for that will prevent their flowering the following Summer : these Roots should always be planted in pretty strong fresh Earth ; for they will not thrive in a light rich Soil. In the Spring they must be constantly watered, if the Season should prove dry, otherwise they will not flower ; nor should they be parted oftener than every third Year, to have them strong. These Plants flower in *July*, and their Seeds are ripe the latter End of *August*.

It is called *Parnassus*, from *Mount Parnassus*, on which it was supposed to grow ; and from the Cattle feeding on it, it was called a Grafs, though the Plant has no Resemblance to any of the Grafs-kind ; but is more like to the *Ranunculus* in Flower ; and the Leaves are pretty broad, oblong, and smooth.

PARONYCHIA, Mountain Knot-grafs.

The Characters are ;

It hath an apetalous Flower, consisting of several Chives, which rise from the Flower-cup, which is shaped like the Pelvis, and cut into five Parts, for the most part like a Crown : the Pointal afterward becomes a round Seed, wrapt up in a five cornered Husk, which was before the Flower-cup.

The Species are ;

1. *PARO-*

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1. *PARONYCHIA Hispanica*. *Clus. Hisp. Spanish Mountain Knot-grafs.*

2. *PARONYCHIA Narbonensis erecta*. *Inst. R. H. Upright Mountain Knot-grafs of Narbonne.*

3. *PARONYCHIA Hispanica supina Alfinefolia, capitulis minus compactis*. *Inst. R. H. Low Spanish Mountain Knot-grafs, with a Chickweed-leaf, and the Heads less compact.*

4. *PARONYCHIA Hispanica fruticosa, myrti folio*. *Inst. R. H. Shrubby Spanish Mountain Knot-grafs, with a Myrtle-leaf.*

5. *PARONYCHIA Lusitanica, polygoni folio, capitulis echinatis*. *Inst. R. H. Portugal Mountain Knot-grafs, with prickly Heads.*

6. *PARONYCHIA Orientalis humifusa, serpylli folio*. *Tourn. Cor. Dwarf Eastern Mountain Knot-grafs, with a Mother-of-thyme-leaf.*

The five Sorts first-mentioned grow wild in *Spain, Portugal*, and the South of *France*; where they generally are found near the Sea, on the Sides of Banks; but the sixth Sort was discovered by *Dr. Tournefort* in the *Lewant*. They are all (except the second and fourth Sorts) low Plants, which trail on the Ground, in the same manner as our common Knot-grafs; but continue several Years.

These Plants are preserved by those who are curious in Botany, for the sake of Variety; but are seldom admitted into other Gardens; though the first Sort may have room in every good Garden, for the fine Appearance it makes in Autumn, when the silvery scaly Heads, which are produced at every Joint of the Branches, make a goodly Shew.

They may all be propagated by sowing their Seeds on a Bed of light fresh Earth, in an open Situation, about the Middle or Latter-end of

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March; and when the Plants come up, they should be carefully weeded; and if the Season should prove dry, they must be now-and-then watered. When the Plants are large enough to transplant, they should be carefully taken up, and some of them planted in Pots, and the others on a warm Border, where they may be sheltered in Winter; otherwise they will not live in this Country. Those which are planted in Pots, should be placed under an Hot-bed-frame, where they may be screened from hard Frost; but should have as much free Air as possible in mild Weather. With this Management the Plants may be preserved many Years, and will flower every Season; but they rarely produce any Seeds in this Country.

PARSLEY. *Vide Apium.*

PARSNEP. *Vide Pastinaca.*

PARTHENIUM, Bastard Feverfew.

The Characters are;

It hath a radiated discous Flower, consisting of several Florets, which occupy the Disk, but are barren: the Half-florets, which are shaped like an Heart, are succeeded by black Seeds, which are naked, having no Down adhering to them: to which may be added, The Flower-cup is simple, and cut into five Parts in the Bottom.

The Species are;

1. *PARTHENIUM foliis compositis multifidis*. *Lin. Hort. Cliff.* Bastard Feverfew, with a Mugwort-leaf.

2. *PARTHENIUM foliis ovatis crenatis*. *Lin. Hort. Cliff.* Bastard Feverfew, with an Elecampane-leaf.

3. *PARTHENIUM foliis lanceolatis serratis*. *Lin. Hort. Cliff.* Shrubby Bastard Feverfew, with spear-shap'd Leaves, by some falsely call'd, The Jesuits Bark-tree.

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The first Sort grows wild in great Plenty in the Island of *Jamaica*, and in some other of the *English* Settlements in the *West-Indies*, where it is called wild Wormwood, and is used by the Inhabitants as a vulnerary Herb.

The second Sort grows plentifully in several Parts of the *Spanish West-Indies*; from whence the Seeds have been brought to *Europe*.

The first is an annual Plant, which may be propagated by sowing the Seeds on an Hot-bed early in the Spring; and when the Plants are come up, they should be transplanted on another Hot-bed, at about five or six Inches Distance, observing to water and shade them until they have taken new Root; after which time they must have a pretty large Share of fresh Air in warm Weather, by raising of the Glasses of the Hot-bed every Day; and they must be duly watered every other Day at least. When the Plants have grown so as to meet each other, they should be carefully taken up, preserving a Ball of Earth to their Roots; and each planted into a separate Pot filled with light rich Earth; and if they are plunged into a moderate Hot-bed, it will greatly facilitate their taking fresh Root; but where this Conveniency is wanting, the Plants should be removed to a warm-sheltered Situation, where they must be shaded from the Sun until they have taken new Root; after which time they may be exposed, with other tender annual Plants, in a warm Situation; where they will flower in *July*, and their Seeds will ripen in *September*. But if the Season should prove cold and wet, it will be proper to have a Plant or two in Shelter, either in the Stove, or under tall Frames, in order to have good Seeds, if those Plants which

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are exposed should fail, whereby the Species may be preserved.

The second Sort is a perennial Plant, which dies to the Ground every Autumn, and shoots up again the following Spring. The Seeds of this Sort were sent me by my good Friend Dr. *Thomas Dale*, from *South-Carolina*, where the Plants grow wild. This may be propagated by parting of the Roots in Autumn, and may be planted in the full Ground, where it will abide the Cold of our ordinary Winters very well. This Sort flowers in *July*, but seldom produces good Seeds in *England*.

The third Sort has been many Years preserved in the *English* Gardens. This was brought from *America* for the true Jesuits Bark-tree; but it hath been since discovered, that the Tree from whence that Bark is taken, is of a different Genus from this; and, by the Seed vessels, appears to be near akin to the *Justicia*.

This Plant was generally preserved in Pots, and housed in the Winter; but, of late Years, it hath been planted in the open Air, where it thrives, and endures the Cold very well, provided it is planted in a sheltered Situation. It may be propagated by Cuttings, which should be planted in *March*, upon a Border of loamy Earth; and if the Spring should prove dry, they must be often watered, otherwise the Cuttings will fail: but if they are properly managed, they will be well rooted by the Autumn, and may then be transplanted. It may also be propagated by Layers, which will be well rooted in one Year; or from Suckers, which are often produced in plenty from the Roots of the old Plants: but as there is little Beauty in the Plant, and as the Shoots are very irregular, and thinly disposed; few

Persons

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Persons care to preserve the Plants, unless it be for the sake of Variety.

PASQUE-FLOWER. *Vide Pulsatilla.*

PASSE RINA, Sparrow-wort.

This Title was applied by *Tragus* to a Plant of another Genus; but *Dr. Linnaeus* has constituted a new Genus by this Name.

The Characters are;

The Flower hath no Empalement, and consists of one Leaf, which is tubulous, and cut into four Parts at the Brim: in the Centre of the Flower is situated the Pointal, attended by eight Stamina: the Pointal afterward changes to an oval Fruit, having one Cell, in which is lodged one oval-pointed Seed.

The Species are;

1. *PASSERINA foliis linearibus.*
Lin. Hort. Cliff. Sparrow-wort with very narrow Leaves.

2. *PASSERINA foliis lanceolatis.*
Lin. Hort. Cliff. Sparrow-wort, with spear-shap'd Leaves.

The first Sort hath been mentioned by some Authors under the Title of *Thymelea tomentosa*, &c. and the second Sort under the Title of *Erica Africana*, &c. and both of them have had several Names applied to them; which were so confused, as render it very difficult to know the Plants they mentioned.

These Plants grow to the Height of four or five Feet, in *England*, and may be trained up very regular; and as they are ever green, there may be a Plant or two of each Sort allowed to have a Place in the Green-house, where a Collection of rare Plants is maintain'd.

These are both propagated by Cuttings, which should be planted in the Spring, upon a moderate Hot-bed; where, if they are duly watered, and screened from the Sun, they will take Root in about three

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Months, so as to be fit to remove; when they should be each transplanted into a small Pot filled with fresh light Earth, and placed in a shady Situation until they have taken Root; after which time, they may be placed in a sheltered Situation, with other hardy Exotic Plants, till *October*; when they must be removed into the Green-house for the Winter-season, and may be treated in the same manner as hath been directed for *Hermannia's*.

PASSION-FLOWER. *Vide Granadilla.*

PASTINACA, Parsnep.

The Characters are;

It is a Plant with rose and umbellated Flowers, consisting of many Petals or Leaves placed orbicularly, and resting on the Empalement; which turns to a Fruit, composed of two Seeds, which are oval, large, thin, border'd, and generally casting off their Cover: to these Marks must be added, That the Leaves are winged and large.

The Species are;

1. *PASTINACA sativa latifolia.*
C. B. P. Garden Parsnep.

2. *PASTINACA sylvestris latifolia.*
C. B. P. Wild Parsnep.

3. *PASTINACA sylvestris altissima.*
Tourn. The tallest wild Parsnep, or *Hercules's All-heal*.

The second Sort grows wild in divers Parts of *England*, upon the Sides of dry Banks; and is by some affirmed to be no-ways different from the first Sort, but by Cultivation: which is a very great Mistake; for I have sown the Seeds of both Sorts in the same Bed for several Years; but could not find, that either Sort alter'd in the least, the second still retaining the same Smoothness in the Leaf, and the same pale Colour, and Largeness of Root; as did the first its usual Roughness, dark-green Colour, and slender Roots: nor do

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I believe either Sort will alter, if they were cultivated ever so long.

The Root and Seeds of the second Sort is sometimes used in Medicine; but it is seldom cultivated in Gardens, the Markets being supplied from the Fields: yet the Druggists commonly sell the Seeds of the Garden-kind for it; which they may purchase at an easy Price, when it is too old to grow.

The first Sort is cultivated in Kitchen-gardens; the Roots of which are large, sweet, and accounted very nourishing. They are propagated by Seeds, which should be sown in *February* or *March*, in a rich mellow Soil; which must be well dug, that their Roots may run downward; the greatest Excellency being the Length and Bigness of the Roots. These may be sown alone, or with Carrots, as is practised by the Kitchen-gardeners near *London*; some of whom also mix Leeks, Onions, and Lettuce, with their Parsneps: but this I think very wrong; for it is not possible, that so many different Sorts can thrive well together, except they are allowed a considerable Distance; and if so, it will be equally the same to sow the different Sorts separate. However, Carrots and Parsneps may be sown very well, especially where the Carrots are designed to be drawn off very young; because the Parsneps generally spread most toward the Latter-end of Summer, which is after the Carrots are gone; so that there may be a double Crop upon the same Ground.

When the Plants are come up, you should hoe them out, leaving them about ten Inches or a Foot asunder; observing at the same time to cut up all the Weeds, which, if permitted to grow, would soon overbear the Plants, and choak them: this must be repeated three or four times in the Spring, according as you

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find the Weeds grow; but in the latter Part of Summer, when the Plants are so strong as to cover the Ground, they will prevent the Growth of Weeds; so that after that Season they will require no farther Care.

When the Leaves begin to decay, the Roots may be dug up for Use; before which time they are seldom well tasted: nor are they good for much late in the Spring, after they are shot out again: so that those who would preserve these Roots for Spring-use, should dig them up in the Beginning of *February*, and bury them in Sand, in a dry Place, where they will remain good until the middle of *April*, or later.

If you intend to save the Seeds of this Plant, you should make choice of some of the longest, straightest, and largest Roots; which should be planted about two Feet asunder, in some Place where they may be defended from the strong South and West Winds; for the Stems of these Plants commonly grow to a great Height, and are very subject to be broken by strong Winds, if exposed thereto: they should be constantly kept clear from Weeds; and if the Season should prove very dry, you must give them some Water twice a Week, which will cause them to produce a greater Quantity of Seeds; which will be much stronger than if they were wholly neglected. Toward the Latter-end of *August*, or the Beginning of *September*, the Seeds will be ripe; at which time you should carefully cut off the Heads, and spread them upon a coarse Cloth for two or three Days, to dry; after which, the Seeds should be beaten off, and put up for Use: but you must never trust to these Seeds after they are a Year old; for they will seldom grow beyond that Age.

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The third Sort is preserv'd in Botanic Gardens, amongst some other Sorts of these Plants, for Variety; but is seldom propagated for Use. This is by many supposed to be the the *Panaces Syriacum* of the Antients, from whence the *Opopanax* is taken, which is supposed to be the concrete Juice of this Plant; as is the *Assa fœtida* supposed to be the concrete Juice of one Species of this Genus.

All these Sorts may be cultivated by sowing their Seeds early in the Spring, or in Autumn, soon after they are ripe; and should be managed as the Garden-kind, with this Difference; viz. the Plants should not stand nearer than two Feet and an half Distance; but then they need not be reduced to this until the succeeding Spring. These Roots are perennial, and may be removed with Safety at any time after their Leaves are decay'd: they seldom produce Seeds until the third Year after they are sown.

PAVIA, The Scarlet Flowering Horse-chestnut, *vulgo*.

The Characters are;

The Leaves are like those of the Horse-chestnut: the Flower is of an anomalous Figure, and consists of five Leaves, which are so disposed as to resemble a Lip-flower: the two uppermost are united, and form a sort of Helmet: the three undermost appear somewhat like a Mouth gaping: these Flowers are disposed into a Spike, and are of a beautiful scarlet Colour: the Ovary, which rises in the Centre of the Flower-cup, afterward becomes an oblong pyramidal Fruit, divided into three Cells, in each of which is lodg'd one globular Seed.

There is but one Species of this Tree; viz.

PAVIA. Boerb. Ind. The Scarlet Flowering Horse-chestnut, *vulgo*.

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This Tree is a Native of *America*, from whence the Seeds were first brought into *Europe*: it grows in great Plenty in the Woods of *South-Carolina*, but is very hardy, enduring the severest Cold of our Climate in the open Air.

It may be propagated by sowing the Seeds in the Spring, upon a warm Border of light sandy Earth; and when the Plants come up, they should be carefully clear'd from Weeds: but they must not be transplanted until the Year following. But as these Seedling-plants are tender while they are young, so they should be cover'd with Mats the next Winter; and this should be carefully perform'd in Autumn, when the early Frosts begin: for as the Top of these young Plants will be very tender, so a small Frost will pinch them; and when the Tops are kill'd, they generally decay to the Ground; and when this happens, they seldom make good Plants after. Therefore this should be constantly observ'd for two Years, or three at most, by which time the Plants will have gotten Strength enough to resist the Frost; when they should be remov'd just before they begin to shoot, and placed either in a Nursery to be train'd up, or else where they are to remain; observing, if the Season be dry, to water them until they have taken Root, as also to lay some Mulch upon the Surface of the Ground, to prevent the Sun and Wind from drying it too fast: and as the Plants advance, the lateral Branches should be pruned off, in order to reduce them to regular Stems.

You must also observe to dig the Ground about their Roots every Spring, that they may be loose, to admit the Fibres of the Roots, which, while young, are too tender

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to penetrate the Ground, if it be very hard.

With this Management the Plants will greatly advance, and in four or five Years will produce Flowers and Fruits, which in warm Seasons are perfected enough to grow; so that the Plants may be multiplied therefrom very fast.

This Tree may also be propagated by budding or inarching it upon the common Horse-chestnut; which is the common Method practised by the Nursery-men: but the Trees thus raised will never arrive to near the Size of those which are produced from Seeds; nor will they grow near so fast.

Such of these Trees as are raised from Seeds, if planted in a good Soil, will grow to twenty-five or thirty Feet high, and produce great Numbers of beautiful red Flowers, which commonly appear the Beginning of *June*; at which Season it makes a beautiful Appearance amongst other hardy Trees.

PEACH. *Vide* *Perfica*.

PEAR. *Vide* *Pyrus*.

PEAS. *Vide* *Pisum*.

PEAS EVERLASTING. *Vide* *Lathyrus*.

PEDICULARIS, Rattle, Cockcomb, or Lousewort.

There are four different Kinds of this Plant, which grow wild in Pastures in several Parts of *England*, and in some low Meadows are very troublesome to the Pastures; especially one Sort with yellow Flowers, which rises to be a Foot high, or more, and is often in such Plenty, as to be the most predominant Plant: but this is very bad Food for Cattle; and when it is mowed with the Grass for Hay, renders it of little Value. The Seeds of this Plant are generally ripe by the time the Grass is mowed: so that whenever Persons take

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Grass-seed for sowing, they should be very careful, that none of this Seed is mixed with it. As these Plants are never cultivated, I shall not trouble the Reader with their several Varieties.

PELECINUS.

The Characters are;

It hath a papilionaceous (or Pea-bloom) Flower, out of whose Empalement rises the Pointal, which afterward becomes a plain bicapsular and bivalve Pod, indented on each Side like a Saw, and filled with plain kidney shaped Seeds.

We know but one Species of this Plant; viz.

PELECINUS vulgaris. *Inst. R. H.*
Common Pelecinus.

This Plant is preserv'd in Botanic Gardens, for the sake of Variety: it is an annual Plant; so the Seeds should be sown early in *April*, on a Bed of fresh light Earth, in Drills about eighteen Inches asunder: and when the Plants are come up, they should be carefully clear'd from Weeds; and where they are too close, they should be thinn'd, leaving them six or eight Inches Distance in the Rows, and observe always to keep them clear from Weeds, which is all the Culture they require. These Plants spread on the Ground, and from the Wings of the upper Leaves the Flowers are produced on slender Footstalks, which are small, and of a dirty-red Colour; these are succeeded by Pods, which are flat, and indented on both Sides, resembling the Saw of the Saw-fish.

PELLITORY OF THE WALL. *Vide* *Parietaria*.

PENTAPHYLLOIDES. *Vide* *Potentilla*.

PENY-ROYAL. *Vide* *Pulegium*.

PEONY. *Vide* *Pæonia*.

PEPO, Pumpkin.

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The Characters are ;

The Flower consists of one Leaf, which is bell-shaped, expanded at the Top, and cut into several Segments : of these Flowers some are Male, and some are Female, as in the Cucumbers and Melons : the Female Flowers grow upon the Top of the Embryo, which afterward becomes an oblong or round fleshy Fruit, having sometimes an hard, rugged, or uneven Rind, with Knobs and Furrows ; and is often divided into three Parts, inclosing flat Seeds, that are edged or rimmed about, as it were, with a Ring, and fix'd to a spongy Placenta.

The Species are ;

1. PEPO oblongus. C. B. P. The greater oblong Pumpkin.
2. PEPO vulgaris. Raii Hist. The common Pumpkin.
3. PEPO rotundus, aurantii forma. C. B. P. Orange-shap'd Pumpkin.
4. PEPO fructu parvo pyriformi. Tourn. Pear-shap'd Pumpkin.
5. PEPO fructu minimo sphaerico. Tourn. Pumpkin with a very small spherical Fruit.

There are several other Varieties of these Fruits, which seem to be only seminal Variations ; so that it would be needless to mention them all in this Place, since the Seeds taken from any one of the Sorts will not continue the same three Years together, if sown in the same Garden, as I have several times experienced.

The two first Sorts are by some Persons cultivated for their Fruit ; which, when ripe, they cut open, and take out the Seeds, and then slice some Apples into the Shells, mixing them with the Pulp of the Fruit and Sugar : this they bake in an Oven, and afterwards eat it spread upon Bread and Butter : but it is too strong for Persons of weak Stomachs, and only proper for Coun-

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try - people, who use much Exercise.

The Seeds, of these Plants are used as one of the four cold Seeds in Medicine.

The other Sorts are preserved by some curious Persons, for Variety ; but are of little Use, being good for nothing when grown old ; but while they are very small, some Persons gather and boil them, like Turneps, or as they do the Squashes ; and are very fond of them.

These may be propagated in the same manner as was directed for the Gourds ; to which I shall refer the Reader, to avoid Repetition.

PERESKIA, Barbados Gooseberry, vulgo.

The Characters are ;

It hath a rose-shaped Flower consisting of several Leaves, which are placed orbicularly ; whose Cup afterward becomes a soft fleshy globular Fruit, beset with Leaves : in the middle of the Fruit are many flat roundish Seeds, included in a Mucilage.

We know but one Species of this Plant ; viz.

PERESKIA aculeata, flore albo, fructu flavescente. Plum. Nov. Gen. Prickly Pereskia, with a white Flower, and a yellowish Fruit.

This Plant grows in some Parts of the Spanish West-Indies, from whence it was brought to the English Settlements in America, where it is call'd a Gooseberry, and by the Dutch it is call'd Blad-apple. This Plant hath many slender Branches, which will not support themselves ; so must be supported by Stakes, otherwise they will trail on whatever Plants grow near them. These Branches, as also the Stem of the Plant, are beset with long whitish Spines, which are produced in Tufts. The Leaves are roundish,

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roundish, very thick and succulent; and the Fruit is about the Size of a Walnut, having Tufts of small Leaves on it, and hath a whitish mucilaginous Pulp.

It may be propagated by planting the Cuttings during any of the Summer-months: these Cuttings should be planted in Pots filled with fresh light Earth, and plunged into a moderate Hot-bed of Tanners Bark, observing to shade them from the Heat of the Day, as also to refresh them every third or fourth Day with Water. In about two Months the Cuttings will have made good Roots, when they may be carefully taken out of the Pots, and each planted in a separate Pot fill'd with fresh Earth, and then plunged into the Hot-bed again, where they may remain during the Summer-season; but at *Michaelmas*, when the Nights begin to be cold, they should be removed into the Stove, and plunged into the Bark-bed. During the Winter-season, the Plants must be kept warm, and should be water'd twice a Week; but in cold Weather it should not be given in large Quantities. In Summer they must have a large Share of Air, and must be more plentifully water'd: but they should constantly remain in the Stove; for though they will bear the open Air in Summer, in a warm Situation, yet they will make no Progress, if they are placed abroad; nor do they thrive near so well in the Dry-stove, as when they are plunged in the Tan; so that the best Way is to set them next a Trellace, at the Back of the Tan-bed, to which their Branches may be fastened, to prevent their trailing on other Plants. This Plant has not as yet produced either Flowers or Fruit in *England*; but as there are several Plants pretty well grown in the Gardens of the Curious, so

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we may expect some of them will flower in a short time.

PERICLYMENUM, Trumpet-honeysuckle, *vulgo*.

The Characters are;

It hath the whole Appearance of the Honeysuckle (from which it differs in the Shape of the Flower), which is tubulose or bell-shaped, and expands at the Top, where it is cut into several almost equal Segments.

The Species are;

1. PERICLYMENUM *Virginianum*, *semper virens & florens*. H. L. *Virginian Scarlet Honeysuckle, vulgo*.

2. PERICLYMENUM *racemosum*, *flore flavescente, fructu niveo*. Plum. Tab. Hort. Elth. Branching Trumpet-honeysuckle, with a yellow Flower, and a snowy Fruit, commonly call'd in *Barbados*, Snowberry-bush.

3. PERICLYMENUM *arborescens*, *ramulis inflexis, flore lateo*. Plum. Cat. Tree-like Trumpet-honeysuckle, with a yellow Flower.

4. PERICLYMENUM *aliud arborescens, ramulis inflexis, flore corallino*. Plum. Cat. Tree-like Trumpet-honeysuckle, with a coralline Flower.

The first Sort is a Shrub greatly esteem'd for the Beauty of its Flowers, which are of a fine scarlet Colour, the Leaves continue all the Year green, and it continues flowering most Part of the Summer.

It may be propagated by laying down the tender Branches in the Spring, observing in dry Weather to refresh them with Water, which will greatly facilitate their Rooting: the Spring following, they will be fit to transplant; when they should be cut off from the old Plants, and carefully taken up, so as not to injure their Roots. The best time to remove them is in *March*, just before they shoot out; but you must ob-

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serve, if the Season should prove dry, to water them, and lay a little Mulch upon the Surface of the Ground near their Stems, to prevent the Ground from drying too fast. It should have a strong moist Soil, and be exposed to the South-east Sun; but must have the Assistance of a Wall or Pale to support the Branches, otherwise they will trail upon the Ground.

This Plant, although a Native of Virginia, yet, if planted in a clear Air, will endure the severest Cold of our Climate very well; but it will not thrive in close Places, or too near the City, the Smoke arising from the Sea-coal Fires being very pernicious to it.

The second Sort is pretty common in Barbados and Jamaica, where the Inhabitants give it the Name of Snowberry-bush, from the extreme Whiteness of the Fruit. The third and fourth Sorts were discover'd by Father Plumier in some of the French Settlements in America; and since by the late Dr. Housloun at La Vera Cruz.

These are all of them very tender Plants; so must constantly remain in the Bark-stove, otherwise they will not thrive in this Country. They may be propagated by Seeds, which should be brought over either in Sand or Earth, otherwise they seldom succeed: when they arrive, the Tubs of Earth, in which the Seeds were sown, should be plunged into an Hot-bed of Tanners Bark, observing frequently to water them: and when the Plants are come up, they should be carefully transplanted into separate small Pots filled with fresh rich Earth, and plunged into the Hot-bed again; where they may remain till about Michaelmas, when they should be plunged into the Bark-bed in the Stove, and treated as other ten-

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der Exotic Plants from the same Countries; and in two or three Years the Plants will flower, when they will make an agreeable Variety.

PERIPLOCA, *Virginian Silk*, *vulgo*.

The Characters are;

The Flower consists of one Leaf, which is more expanded at the Brim than those of the Apocynum; the Pointal, which rises in the Centre of the Flower-cup, becomes a Fruit so nearly resembling that of the Apocynum, as not to be distinguish'd therefrom, but by very curious Observers: to which should be added, It hath climbing Stalks.

The Species are;

1. PERIPLOCA *foliis oblongis*. Tourn. Periploca with oblong Leaves.
2. PERIPLOCA *Monspeliaca, foliis rotundioribus*. Tourn. Periploca of Montpellier, with rounder Leaves.
3. PERIPLOCA *foliis oblongis angustioribus*. Inst. R. H. Longer and narrower-leav'd Virginian Silk, or Climbing Dogs-bane.
4. PERIPLOCA *Monspeliaca, foliis acutioribus*. Inst. R. H. Climbing Dogs-bane of Montpellier, with sharp-pointed Leaves.
5. PERIPLOCA *Americana, fructu molliter echinato*. Inst. R. H. American Climbing Dogs-bane, with a prickly Fruit.
6. PERIPLOCA *Americana latifolia, siliqua dura oblonga, tumida & glabra*. Inst. R. H. Broad-leav'd American Climbing Dogs bane, with a long hard smooth swelling Pod.
7. PERIPLOCA *Americana scandens, salicis, angustissimo folio, flore albo*. Plum. Climbing American Dogs-bane, with a narrow Willow-leat, and a white Flower.
8. PERIPLOCA *Americana repens umbellata, foliis citri, flore coccineo*. Plum. Creeping American Dogs-bane,

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bane, with a Citron-leaf, and scarlet Flowers, growing in an Umbel.

9. *PERIPLOCA Americana scandens, folio citri, fructu maximo.* Plum. American Climbing Dogsbane, with a Citron-leaf, and a large Fruit.

10. *PERIPLOCA Americana scandens, folio convolvuli, fructu alato.* Plum. American Climbing Dogsbane, with a Convolvulus-leaf, and a winged Fruit.

The first Sort hath woody Branches, which twist themselves about each other, or whatever Support is near it, and will rise to the Height of thirty Feet or upwards: this produces its starry-shap'd Flowers in Clusters from the Footstalks of the Leaves; which are of a dark-purple Colour, but have no scent.

This may be propagated by laying down its Branches in the Spring, which will take Root in a Year's time; when the Layers may be taken off, and transplanted where they are to remain; which should be either against a lofty Wall or Building, or else placed in Wilderness-quarters amongst other tall-flowering Trees, where they should be supported by strong Poles, about which these Plants will twine, and rise to a great Height. This Sort is hardy, and will endure the Cold of our Winters very well, provided it is planted in a dry Soil.

It produces its Flowers in June and July; but rarely perfects its Seeds in England. The Flowers are not very beautiful; but, for their Oddness, may have a Place amongst other hardy Shrubs in every good Garden.

The second, third, and fourth have annual Stalks, but perennial Roots, which grow to the Size of a Parsnep, and will continue many Years. These will live in the full

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Ground in England, if they are planted in a dry Soil, and have a warm Situation; their Branches decay in Autumn, and fresh are sent out from their Roots in the Spring, which twist in the same manner as Hops, to whatever is near them, and grow to the Height of six or seven Feet: the Flowers are of a greenish-white Colour; so there is little Beauty in them.

The other seven Sorts are tender, being Natives of the warm Parts of America. The Seeds of all these Sorts were sent to England by the late Dr. Houstoun, who collected them in Jamaica, at Campechy, and Carthagena, where they grow in great Plenty, and twist themselves round whatever Trees grow near them; and some of them rise to the Height of forty or fifty Feet, or more. Some of these Sorts produce very large warted Pods, which are full of oblong flat Seeds; to which is fastened a very long soft white Down, which helps to convey the Seeds to a great Distance when ripe. This Down, as also that of the Apocynum, have of late Years been used to stuff Pillows, Mattresses, and Quilts, for which Purposes there is nothing so proper; for it is so exceedingly light, that a Quilt of great Thickness is hardly to be felt, when spread over a Bed; which is of great Advantage to those Persons who are troubled with the Gout, and cannot bear any Weight on the Part affected. It hath also a very great Elasticity, so that it is not apt to stick together. This Down is call'd in French, *De la Wadde*, and is greatly in Use among the Quality in France.

All these Plants may be propagated by Seeds, which should be sown on an Hot-bed early in the Spring; and when the Plants are come up fit to transplant, they should each be

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planted into a separate Pot fill'd with fresh Earth, and plung'd into a moderate Hot-bed, observing to shade them from the Sun every Day until they have taken new Root; after which time they should have a large Share of Air in warm Weather, and must have plenty of Water. In about six Weeks or two Months after planting, the Plants will get up to reach the Glasses of the Hot-bed; when they should be shifted into larger Pots, and plunged into the Bark-bed in the Stove; where they must be supported by an Espalier, otherwise they will twist themselves round whatever Plants grow near them.

These Plants will bear the open Air in Summer; but they never make any Progress when they are expos'd, and rarely flower: therefore, in order to have these Plants in Beauty, they should constantly remain in the Stove, and must have a large Share of free Air in mild Weather. When they are thus managed, they will rise to the Height of thirty Feet, or more, and will produce Flowers every Summer.

The fourth Sort hath been by some Persons taken for Scammony; and is by some Authors titled *Montpelier Scammony*; the Roots and Branches abounding with a milky Juice: but the true *Turky Scammony* is a Species of *Convolvulus*, under which Article it is before mentioned.

PERIWINKLE. *Vide Pervinca.*

PERSEA, The Avocado, or Avogato Pear.

The Characters are;

It hath a rose-shaped Flower, consisting of several Leaves, which are ranged in a Circle; from whose Middle arises the Pointal, which afterward becomes a soft fleshy pear-shaped Fruit, in which is an hard Stone or

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Seed, having two Lobes, which is included in a Membrane or Pericarpium.

We know but one Species of this Plant; viz.

PERSEA. *Clus. Hist.* The Avocado, or Avogato Pear.

This Tree grows in great Plenty in the *Spanish West-Indies*, as also in the Island of *Jamaica*; and hath been transplanted into most of the *English Settlements* in the *West-Indies*, on account of its Fruit; which is not only esteemed by the Inhabitants as a Fruit to be eaten by way of Dessert, but is very necessary for the Support of Life. The Fruit of itself is very insipid; for which Reason they generally eat it with the Juice of Lemons and Sugar, to give it a Piquancy. It is very nourishing, and is reckon'd a great Incentive to Venery. Some People eat this Fruit with Vinegar and Pepper.

This Tree, in the warm Countries, where it is planted, grows to the Height of thirty Feet, or more; and has a Trunk as large as our common Apple-trees: the Bark is smooth, and of an Ash-colour; the Branches are beset with pretty large oblong smooth Leaves, like those of Laurel, which are of a deep-green Colour, and continue on the Tree throughout the Year: the Flowers and Fruit are, for the most part, produc'd toward the Extremity of the Branches.

In *Europe* this Plant is preserved as a Curiosity, by those Persons who are skilful in collecting Exotic Plants: and tho' there is little Hope of its producing Fruit, yet, for the Beauty of its shining green Leaves, which continue thro' the Winter, it deserves a Place in every curious Collection of Plants.

It is propagated by Seeds, which should be obtained as fresh as possible,

ble, from the Countries of its Growth; and if they are brought over in Sand, they will be more likely to grow, than such as are brought over dry. These Nuts or Seeds should be planted in Pots filled with light rich Earth, and plunged into an Hot-bed of Tanners Bark, which should be kept pretty warm. The Pots should be also frequently watered, when the Earth appears dry, which will greatly facilitate the Vegetation of the Seed, provided the Water is not given in large Quantities, which would rot them. In about a Month or five Weeks the Plants will come up, when they must be treated very tenderly; for the Bed must be kept in a due Temperature for Heat; and when the Day proves warm, the fresh Air should be admitted to the Plants, by raising the Glasses a little. When they have grown about four Inches high, they should be carefully transplanted; and where there are several Plants in one Pot, they must be parted, being careful to preserve a Ball of Earth to the Root of each, and planted into separate small Pots fill'd with light rich Earth, and then plunged into an Hot-bed of Tanners Bark; observing to shade them until they have taken new Root; after which time they should have fresh Air admitted to them in proportion to the Warmth of the Season: toward Michaelmas the Plants must be removed into the Stove, and plunged into the Bark-bed, where, during the Winter-season, they should be kept very warm, and must be gently watered twice a Week. In the Spring the Plants should be shifted into Pots a Size larger than the former, and the Bark-bed should be then renewed with fresh Tan, which will set the Plants in a growing State early,

whereby they will make a fine Progress the following Summer. These Plants must be constantly kept in the Stove; for they are too tender to bear the open Air in this Country at any Season.

PERSICA, The Peach-tree.

The Characters are;

It hath long narrow Leaves: the Flower consists of several Leaves, which are placed in a circular Order, and expand in form of a Rose: the Pointal, which rises from the Centre of the Flower-cup, becomes a roundish fleshy Fruit, having a longitudinal Furrow, inclosing a rough rugged Stone, which is deeply furrow'd, by which it is distinguish'd from the Almond.

There are a great Variety of these Trees, which are cultivated in the Gardens of those who are curious in collecting the several Sorts of Fruit in the different Parts of Europe: I shall therefore first beg Leave to mention two or three Sorts, which are cultivated for the Beauty of their Flowers; after which, I shall enumerate the several Sorts of good Fruit which have come to my Knowledge.

1. PERSICA *vulgaris, flore pleno.* Tourn. Peach-tree with double Flowers.

2. PERSICA *Africana nana, flore incarnato simplici.* T. Dwarf Almond, with single Flowers, *vulgo.*

3. PERSICA *Africana nana, flore incarnato pleno.* T. Double-flowering Dwarf Almond, *vulgo.*

The first of these Trees is a very great Ornament in a Garden early in the Spring, the Flowers being very large, double, and of a beautiful red or purple Colour. This may be planted in Standards, and, if intermix'd amongst other flowering Trees of the same Growth, makes a very agreeable Variety: or it may

be planted against the Walls of the Pleasure-garden, where the beautiful Appearance of its Flowers early in the Spring will be more acceptable in such Places than the choicest Fruits, which must be exposed to Servants, and others, so that they seldom can be preserv'd in large Families until they are ripe. This Tree may be propagated by budding it on the Almond or Plum-stocks in the same manner as the other Sort of Peaches; and should be planted in a good fresh Soil, that is not over-moist.

The other two Sorts are of humbler Growth, seldom rising above five Feet high: these may be budded upon Almond-stocks, or propagated by Layers; they will also take upon Plum-stocks; but they are very apt to canker, after they have stood four or five Years upon those Stocks, especially that with double Flowers, which is tenderer than the other, which sends out Suckers from the Root, whereby it may be easily propagated.

These Shrubs make a very agreeable Variety amongst low-flowering Trees, in small Wilderness-quarters. The single Sort flowers in the Beginning of *April*, and the double is commonly a Fortnight or three Weeks later.

I shall now proceed to mention the several Sorts of good Peaches which have come to my Knowledge: and though perhaps a greater Number of Sorts may be found in some Catalogues of Fruits, yet I doubt whether many of them are not the same Kinds call'd by different Names: for, in order to determine the various Sorts, it is necessary to observe the Shape and Size of the Flowers, as well as the different Parts of the Fruit; for this does sometimes determine the Kind, when the Fruit

alone is not sufficient: besides, there is a vast Difference in the Size and Flavour of the same Peach, when planted on different Soils and Aspects; so that it is almost impossible for a Person who is very conversant with these Fruits to distinguish them, when brought from various Gardens.

The present Confusion of the Names of Fruits hath been many times owing to the bringing over Trees from *France*; for the Persons who are generally employed to bring over those Trees for Sale, are intirely ignorant of their various Sorts, and do themselves take them upon Trust, from the Persons who make it their Business to propagate great Quantities, to supply the Markets of *France*, whither they are brought in Waggon, and sold out in Parcels to those Persons who bring them into *England*. It also happens many times, if they are received by right Names, that these, in Length of Time, are lost, or the Trees come into the Possession of other Persons, who, not knowing the true Name of the Fruit, do often give them new Names, whereby there is such a Confusion in the Names of Fruit, as is impossible to rectify; and hence some Persons have supposed a much greater Variety of Peaches than there is in reality; tho' as the greatest Part of these have been obtained from Seeds, so their Varieties may be multiplied annually, until there be no End of the Sorts. However, I shall content myself with enumerating the principal Sorts now known in *England*, which are sufficient for any Gentleman to make a Collection to continue thro' the whole Season of Fruit.

1. The white Nutmeg (call'd by the *French*, *L'Avant Pêche Blanche*): This Tree has sawed Leaves; but
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generally shoots very weak, unless it is budded upon an Apricot: the Flowers are large and open: the Fruit is small and white, as is also the Pulp at the Stone, from which it separates: it is a little musky and sugary; but is only esteemed for its being the first Sort ripe: it is in eating pretty early in July, and soon becomes mealy.

2. The red Nutmeg (call'd by the French, *L'Avant Pêche de Troyes*): This Tree has sawed Leaves: the Flowers are large and open: the Fruit is larger and rounder than the white Nutmeg, and is of a bright vermilion Colour: the Flesh is white, and very red at the Stone: it has a rich musky Flavour, and parts from the Stone: this Peach is well esteemed: it ripens toward the End of July.

3. The early or small Mignon (call'd by the French, *La Double de Troyes*, or *Mignonette*): This Tree has small contracted Flowers: the Fruit is of a middling Size, and round: it is very red on the Side next the Sun: the Flesh is white, and separates from the Stone, where it is red: the Juice is vinous and rich: it is ripe the End of July, or Beginning of August.

4. The yellow Alberge: This Tree has smooth Leaves: the Flowers are small and contracted: the Fruit is of a middling Size, somewhat long: the Flesh is yellow, and dry: it is seldom well-flavoured, but should be perfectly ripe before it is gathered; otherwise it is good for little: it is ripe early in August.

5. The white Magdalen: This Tree has sawed Leaves: the Flowers are large and open: the Wood is generally black at the Pith: the Fruit is round, of a middling Size: the Flesh is white to the Stone, from which it separates; the Juice is sel-

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dom high-flavoured: the Stone is very small: this ripens early in August.

6. The early Purple (call'd by the French, *La Pourprée hâtive*): This Tree has smooth Leaves: the Flowers are large and open: the Fruit is large, round, and of a fine red Colour: the Flesh is white, but very red at the Stone; is very full of Juice, which has a rich vinous Flavour; and is by all good Judges esteemed an excellent Peach: this is ripe before the Middle of August.

7. The large or French Mignon: The Leaves of this Tree are smooth: the Flowers are large and open: the Fruit is a little oblong, and generally swelling on one Side: it is of a fine Colour: the Juice is very sugary, and of an high Flavour: the Flesh is white, but very red at the Stone, which is small: this is ripe in the Middle of August, and is justly esteemed one of the best Peaches: this separates from the Stone. This Sort of Peach is tender, and will not thrive on a common Stock; so is generally budded upon some vigorous shooting Peach, or an Apricot, by the Nursery-men, which enhances the Price of the Trees. But the best Method is to bud this Peach into some old healthy Apricot, which is planted to a South or South-east Aspect, and to cut away the Apricot when the Buds have taken, and made Shoots: upon some Trees which I have seen, thus managed, there has been a much greater Quantity of fairer, and better flavoured Fruit, than I have ever observed in any other Management; and the Trees have been much more healthy.

8. The *Chevreuse* or *Belle Chevreuse*: This Tree has smooth Leaves: the Flowers are small and

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contracted: the Fruit is of a middling Size, a little oblong, of a fine red Colour: the Flesh is white, but very red at the Stone, from which it separates: it is very full of a rich sugary Juice, and ripens toward the End of *August*: this is a very good Bearer, and may be ranged with the good Peaches.

9. The red *Magdalen* (call'd by the *French* about *Paris*, *Madeleine de Courson*): The Leaves of this Tree are deeply sawed: the Flowers are large and open: the Fruit is large and round, of a fine red Colour: the Flesh is white, but very red at the Stone, from which it separates: the Juice is very sugary, and of an exquisite Flavour: the Fruit is ripe the End of *August*: it is one of the best Sort of Peaches.

10. The early *Newington* (or *Smith's Newington*): This is very like, if not the same, with what the *French* call *Le Pavie blanc*: this Tree has sawed Leaves: the Flowers are large and open: the Fruit is of a middling Size, is of a fine Red on the Side next the Sun: the Flesh is firm and white, but very red at the Stone, to which it closely adheres: it hath a sugary Juice, and is ripe the End of *August*.

11. The *Montauban*: This Tree has sawed Leaves: the Flowers are large and open: the Fruit is of a middling Size, of a deep-red, inclining to purple next the Sun; but of a pale Colour toward the Wall: the Flesh is melting and white to the Stone, from which it separates: the Juice is rich, and the Tree is a good Bearer: it ripens the Middle of *August*, and is well esteemed.

12. The *Malta* (which is very like, if not the same, with the *Italian Peach*): This Tree has sawed Leaves: the Flowers are large and open: the Fruit is of a middling

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Size, of a fine Red next the Sun: the Flesh is white and melting, but red at the Stone, from which it separates: the Stone is flat and pointed: the Tree is a good Bearer: this ripens the End of *August*.

13. The Noblest: This Tree has sawed Leaves: the Flowers are large and open: the Fruit is large, of a bright-red next the Sun: the Flesh is white and melting, and separates from the Stone, where it is of a faint-red Colour: the Juice is very rich in a good Season: it ripens the End of *August*.

14. The Chancellor: The Leaves of this Tree are smooth: the Flowers are small and contracted: the Fruit is shaped somewhat like the *Belle Chevreuse*, but is rounder: the Flesh is white and melting, and separates from the Stone, where it is of a fine red Colour: the Skin is very thin, and the Juice is very rich: it ripens about the End of *August*, and is esteemed one of the best Sort of Peaches. This Tree is very tender, and will not succeed on common Stocks; so is budded twice as the *Mignon*; and if budded on *Apricots*, as was directed for that Sort, will thrive much better than in any other Method.

15. The *Bellegarde* (or as the *French* call it, the *Gallande*): This Tree has smooth Leaves; the Flowers are small and contracted: the Fruit is very large and round, of a deep-purple Colour on the Side to the Sun: the Flesh is white, melting, and separates from the Stone, where it is of a deep-red Colour: the Juice is very rich: this ripens the Beginning of *September*, and is an excellent Peach; but at present not common.

16. The *Lisle* (or as the *French* call it, *La petite Violette bâtive*): This Tree has smooth Leaves: the
Flowers

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Flowers are small and contracted: the Fruit is of a pale-yellow, and melting; but adheres to the Stone, where it is very red: the Juice is very vinous: this ripens the Beginning of *September*.

17. The *Bourdine*: This Tree has smooth Leaves: the Flowers are small and contracted: the Fruit is large, round, and of a fine red Colour next the Sun: the Flesh is white, melting, and separates from the Stone, where it is of a fine red Colour: the Juice is vinous and rich: this ripens the Beginning of *September*, and is greatly esteemed by the Curious. The Tree bears plentifully, and will produce Fruit in Standards very well.

18. The *Rossanna*: This Tree has smooth Leaves: the Flowers are small and contracted: the Fruit is large, a little more long than the *Alberge*: the Flesh is yellow, and separates from the Stone, where it is red: the Juice is rich and vinous: this ripens the Beginning of *September*, and is esteemed a good Peach. This is the same with what some call the Purple, and others the red *Alberge*, it being of a fine purple Colour on the Side next the Sun.

19. The Admirable: This Tree has smooth Leaves: the Flowers are small and contracted: the Fruit is large, round, and red on the Side next the Sun: the Flesh is white, melting, and separates from the Stone, where it is of a deep-red Colour: the Juice is sugary and rich: this ripens the Beginning of *September*. This is by some call'd the early Admirable: but is certainly what the *French* call *L'Admirable*; and they have no other of this Name which ripens later.

20. The old *Newington*: This Tree has sawed Leaves: the Flowers are large and open: the Fruit is

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fair and large, of a beautiful red Colour next the Sun: the Flesh is white, melting, and closely adheres to the Stone, where it is of a deep-red Colour: the Juice is very rich and vinous. This is esteemed one of the best Sort of *Pavies*: it ripens about the Middle of *September*.

21. The *Rambouillet* (commonly call'd the *Rumbullion*): This Tree has smooth Leaves: the Flowers are large and open: the Fruit is of a middling Size, rather round than long, deeply divided by a *Sulcus* or Furrow in the Middle: it is of a fine red Colour next the Sun; but of a light-yellow next the Wall: the Flesh is melting, of a bright-yellow Colour, and separates from the Stone, where it is of a deep-red Colour: the Juice is rich, and of a vinous Flavour: this ripens the Middle of *September*, and is a good Bearer.

22. The *Bellis* (which I believe to be what the *French* call *La Belle de Vitry*): The Leaves of this Tree are sawed: the Flowers are small and contracted: the Fruit is of a middle Size, round, and of a pale-red next the Sun: the Flesh is white, and adheres to the Stone, where it is red: the Juice is vinous and rich: this ripens in the middle of *September*.

23. The *Portugal*: This Tree has smooth Leaves: the Flowers are large and open: the Fruit is large, and of a beautiful red Colour toward the Sun: the Skin is generally spotted: the Flesh is firm, white, and closely adheres to the Stone, where it is of a faint-red Colour: the Stone is small, but full of deep Furrows: the Juice is rich and vinous: this ripens the Middle of *September*.

24. *Le Teton Venus* (or *Venus's Breast*), so call'd from its having a Rising like a Dug, or Bubby: This Tree

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Tree has smooth Leaves: the Flowers are small and contracted: the Fruit is of a middling Size resembling the Admirable, of a pale-red Colour next the Sun: the Flesh is melting, white, and separates from the Stone, where it is red: the Juice is sugary and rich: this ripens late in September.

25. *La Pourprée* (or as the French call it *Pourprée tardive*, i. e. the late Purple): This Tree has very large Leaves, which are sawed; the Shoots are very strong: the Flowers are small and contracted: the Fruit is large, round, and of a fine purple Colour: the Flesh is white, melting, and separates from the Stone, where it is red: the Juice is sugary and rich: this ripens late in September.

26. The *Nivette*: This Tree has sawed Leaves: the Flowers are small and contracted: the Fruit is large, somewhat longer than round, of a bright-red Colour next the Sun, and of a pale-yellow on the other Side: the Flesh is melting, and full of a rich Juice; and is very red at the Stone, from which it separates: this is esteemed one of the best Peaches: it ripens in the middle of September.

27. The Royal (*La Royale*): This Tree has smooth Leaves: the Flowers are small and contracted: the Fruit is large, round, and of a deep-red on the Side next the Sun, and of a paler Colour on the other Side: the Flesh is white, melting, and full of a rich Juice: it parts from the Stone, where it is of a deep-red Colour: this ripens the middle of September; and, when the Autumn is fine, is an excellent Peach.

28. The *Perfique*: This Tree has sawed Leaves: the Flowers are small and contracted: the Fruit is large, oblong, and of a fine red Colour next the Sun: the Flesh is melting, and full of a rich Juice; it separates from the Stone, where it

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is of a deep-red Colour: the Stalk has a small Knot upon it: this makes a fine Tree, and is a good Bearer: it ripens the End of September. Many Gardeners call this the *Nivette*.

29. The monstrous Pavy of *Pomponne* (call'd by the French *Le Pavie rouge de Pomponne*): the Leaves of this Tree are smooth: the Flowers are large and open: the Fruit is very large and round, many times fourteen Inches in Circumference: the Flesh is white, melting, and closely adheres to the Stone, where it is of a deep-red Colour: the Outside is a beautiful red next the Sun, and of a pale Flesh-colour on the other Side: this ripens the End of October, and, when the Autumn is warm, is an excellent Peach.

30. The *Catharine*: This Tree has smooth Leaves: the Flowers are small and contracted: the Fruit is large, round, and of a dark-red Colour next the Sun: the Flesh is white, melting, and full of a rich Juice: it closely adheres to the Stone, where it is of a deep-red Colour: it ripens the Beginning of October; and in very good Seasons is an excellent Peach: but being so very late ripe, there are not many Situations where it ripens well.

31. The Bloody Peach (call'd by the French *La Sanguinolle*): This Peach is of a middling Size, of a deep-red next the Sun: the Flesh is of a deep-red quite to the Stone; and from thence is, by some Gardeners, call'd the Mulberry-peach. This Fruit rarely ripens in England; so is not often planted: but this Fruit bakes and preserves excellently; for which, as also the Curiosity, one or two Trees may be planted, where there is Extent of Walling.

There are some other Sorts of Peaches which are kept in some of the Nurseries; but those which are here

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here enumerated, are the Sorts most worth planting; and in the List the choicest only should be planted: but I shall just mention the Names of those Sorts omitted, for the Satisfaction of the Curious

The *Sion*; the *Bourdeaux*; the *Swalch* or *Dutch*; the *Carlisle*; the *Eton*; the *Pêche de Pau*; Yellow Admirable; the Double-flower. This last Sort is generally planted more for the Beauty of the Flowers, than for the Goodness of the Fruit; of which some Years the Standard-trees produce great Plenty; but they are late ripe, and have a cold watry insipid Juice. The dwarf Peach is also preserved in some Places as a Curiosity. This is a very tender Tree, making very weak Shoots, which are very full of Flower-buds. The Fruit is not so large as a Nutmeg, and not good, nor will the Tree last any time; so it is not worth cultivating.

And indeed, from these thirty-one above-named, there are not above ten of them which I would advise to be planted; because when a Person can be furnished with those which are good, or has the best of the Season, it is not worth while to plant any which are middling or indifferent, for the sake of Variety: therefore the Sorts which I should prefer are these after-mentioned:

The *early Purple*; the *Grosse Mignon*; *Belle Chevreuse*; *Red Magdalen*; *Chancellor*; *Bellegarde*; *Bourdin*; *Rossanna*; *Rambouillet*; and *Niwette*. These are the Sorts best worth planting; and as they succeed each other, so they will furnish the Table thro' the Season of Peaches: and where there is room, and the Situation very warm, one or two Trees of the *Catharine* Peach should have Place; for in very warm Seasons it is an excellent Fruit.

The *French* distinguish those we

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call Peaches into two Sorts; *viz.* *Pavies* and *Peaches*; those are call'd Peaches which quit the Stone; and those whose Flesh closely adheres to the Stone, are call'd Pavies: these are much more esteem'd in *France* than the Peaches; tho' in *England* the latter are preferr'd to the former by the generality of Persons.

The *French* also distinguish them into Male and Female; the Pavies they make to be the Male, and the Peaches the Female: but this Distinction is without Foundation, since the Kernels of both Sorts will produce Trees equally: for the Flowers of Peach-trees are generally Hermaphrodite, and have all the Parts of Generation in them; so that there is no Necessity of supposing any of them to be intirely Male or Female: but it is likely, that this Distinction is of long standing, before Persons had a perfect Notion of Male and Female in Plants, or at least they did not know how to distinguish them asunder.

The *Nectarines* (as I have in another Place said) are by the *French* call'd *Brugnons*, which differ from the other two Sorts, in having a firm hard Flesh, and the Skins quite smooth, without any Down upon them. The Sorts of these I have already mention'd under the Article *Nectarines*, to which the Reader may readily turn: therefore I shall not repeat them in this Place.

I shall now set down the good Qualities of Peaches, by which any Person may judge of their Worth.

A good Peach ought to have a firm Flesh: the Skin should be thin, of a deep or bright-red Colour next the Sun, and of a yellowish Cast next the Wall: the Flesh should be of a yellowish Colour, full of Juice, which should be high-flavour'd: the Stone small, and the Pulp or Flesh

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very thick. When a Peach hath all these Qualities, it may be esteem'd a valuable Fruit.

All the different Sorts of Peaches have been originally obtain'd from the Stones; which, being planted, produce new Varieties, as do the Seeds of all other Fruits; so that where Persons have Garden enough to allow room for propagating these Fruits from Seeds, there is no doubt but many good Sorts may be obtain'd, which will be better adapted to our Climate than such as are brought from warmer Countries; tho' it is true, that there will be many of them good for nothing, as is the Case of most Fruits and Flowers which are produc'd from Seeds, amongst which there may be some valuable Kinds, superior to those from whence the Seeds were taken; yet there is always a great Number which are little worth: but if we can obtain only two or three valuable Sorts, it is sufficient to make amends for the Trouble of raising them: but where Persons are so curious as to plant the Stones of these Fruits, great Regard should be had to the Sorts; and if the Fruit were permitted to remain upon the Trees until they dropp'd off, the Kernels would be fitter for planting, and more likely to grow. The best Sorts for sowing are those whose Flesh is firm, and cleaves to the Stone; and from amongst these you should choose such as ripen pretty early, and have a rich vinous Juice; from which Sorts some good Fruit may be expected.

These Stones should be planted in Autumn, on a Bed of light dry Earth, about three Inches deep, and four Inches asunder; and in the Winter the Beds should be cover'd, to protect them from the Frost, which, if permitted to enter deep into the Ground, will destroy them:

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in the Spring, when the Plants come up, they should be carefully clear'd from the Weeds, which should also be observ'd throughout the Summer; and if the Spring should prove very dry, if you refresh them now-and-then with a little Water, it will greatly promote their Growth: in this Bed they should remain until the following Spring, when they should be carefully taken up, so as not to break their tender Roots, and transplanted into a Nursery, in Rows three Feet asunder, and eighteen Inches distant Plant from Plant in the Rows; observing to lay a little Mulch upon the Surface of the Ground about their Roots, to prevent its drying too fast: and if the Spring should prove very dry, you should give them a little Water once a Week, until they have taken Root; after which, they should be constantly kept clear from Weeds, and the Ground between the Rows carefully dug every Spring, to loosen it, so as that the tender Fibres may strike out on every Side.

In this Nursery they may continue two or three Years; after which, they should be transplanted where they are to remain, to produce Fruit.

In removing these Trees, you should observe to prune their down-right Roots (if they have any) pretty short, and to cut off all bruised Parts of the Roots, as also all the small Fibres, which do generally dry, and, when left upon the Roots after planting again, grow mouldy, and decay; so that they are injurious to the new Fibres which are shot out from the Roots, and very often prevent the Growth of the Trees: but you should by no means prune their Heads; for the Plants which are produced from Stones, are generally of a more spongy Texture, and

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so more liable to decay when cut, than those which are budded upon other Stocks. Besides, as these Trees are designed for Standards (for it is not proper to plant them against Walls, until you see the Produce of their Fruit, to shew which of them deserves to be cultivated), so they will never require any other Pruning, but only to cut out decayed Branches, or such as shoot out very irregular from the Sides; for more than this, is generally very injurious to them.

In planting these Trees, it will be the better way to dispose them singly in the Quarters of the Kitchen-garden, where they will thrive, and produce Fruit, much better than if they are planted pretty near each other in Rows; and as they are thus singly disposed, they will not do much Injury to the Crops which grow under them.

When they have produced Fruit, you will soon be a Judge of their Goodness: therefore such of them as you dislike, may be destroy'd; but those which are good, may be propagated by inoculating them upon other Stocks, which is the common Method now practised to propagate these Fruits: therefore I shall now proceed to treat of that more particularly; in doing which, I shall set down the Method now commonly practised by the Nursery-gardeners; and then propose some few Things of my own, as an Improvement thereon, for such Persons who are very curious to have good Fruit. But, first,

You should be provided with Stocks of the Musclee and White Pear-plums, which are generally esteem'd the two best Sorts of Plums for Stocks to inoculate Peaches and Nectarines upon; as also some Al-

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mond and Apricot-stocks, for some tender Sorts of Peaches, which will not grow upon Plum-stocks: these should be all produced from the Stone (as hath been already directed in the Article of a *Nursery*), and not from Suckers, for the Reasons there laid down.

When these Stocks have grown in the Nursery two Years, they will be strong enough to bud; the Season for which is commonly about *Midsummer*, or any time in *July*, when the Rind will easily separate from the Wood; when you should make choice of some good Cuttings of the Sorts of Fruit you intend to propagate, always observing to take them from healthy Trees, and such as generally produce a good Quantity of well-tasted Fruit; for it is very certain, that any Sort of Fruit may be so far degenerated, where this Care is wanting, as not to be like the same Kind. Besides, whenever a Tree is unhealthy, the Buds taken from that Tree will always retain the Distemper, in a greater or less Degree, according as it hath imbibed a greater or less Quantity of the distemper'd Juice. Thus, for Instance, where a Peach or Nectarine-tree hath been greatly blighted, so as that the Shoots have grown busled, and the Leaves curled up to a great degree, that Distemper is seldom recover'd again by the greatest Art, or at least not under several Years Management; for let the Seasons prove ever so favourable, yet these Trees will continually shew the same Distemper; which many Persons are so weak as to suppose a fresh Blight; whereas in reality it is no other but the Remains of the former Sickness, which are spread and intermix'd with all the Juices of the Tree; so that

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that whatever Buds are taken from such Trees, will always retain a Part of the Distemper.

Upon the Care which is taken in the Choice of the Buds, the whole Success depends ; therefore a Person who is curious to have good Fruit, cannot be too careful in this Particular : for, in general, no more is regarded by those Nursery-men who are the most careful in propagating the several Sorts of Fruit-trees, than the taking their Buds or Grafts from the true Kinds of Fruit-trees : but there is still more Care required to have sound healthy Trees, especially in this of Peach and Nectarines : for if the Buds are taken from young Plants in the Nursery, which have not produced Fruit, the Shoots of which are generally very strong and vigorous, these Buds will have so vicious an Habit, as rarely to be corrected, and brought into good Order : for they will shoot more like the Willow than the Peach ; the Joints being extended to a great Distance from each other, the Shoots very gross, and the Wood pithy : therefore where the Practice of taking the Buds from Nursery-trees is long continued, there can be little Hopes of the Trees so raised. I would therefore recommend it to all curious Persons, to procure their Buds from such Trees as have been long growing, whose Fruit are well-flavoured, and the Trees perfectly sound ; as also never to make choice of the strongest or most luxuriant Shoots of these Trees, but such Shoots as are well-condition'd, and whose Buds grow pretty close together. And altho' these do not make so strong Shoots the following Year, as those which are taken from luxuriant Branches, yet they will be better disposed to bear Fruit, and will make much better Trees.

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The Cuttings with which you are thus to be provided, should always be taken from the Trees either in a Morning or Evening, or else in a cloudy Day ; for if they are cut off when the Sun is very hot, the Shoots will perspire so freely, as to leave the Buds destitute of Moisture ; which is often the Cause of their miscarrying : and the sooner they are used when cut from the Trees, the better they will take. The manner of this Operation being fully explain'd under the Article of *Inoculation*, I shall not repeat it in this Place. The Management of these Trees, during their remaining time in the Nursery, is likewise fully set down under that Article. I shall therefore proceed to the Planting of these Trees, either against Walls, Espaliers, or for Standards. But as the future Success of these Trees in a great measure depends upon the Soil in which they are planted, I shall briefly set down the Method of preparing the Earth for the Borders where they are designed to grow.

The best Earth for Peach-trees is such as is taken from a Pasture-ground, that is neither too stiff and moist, nor over-dry ; but of a middling Nature. This should be dug from the Surface of the Ground about ten Inches deep, taking the Turf with it ; and should be laid in Heaps eight or ten Months at least ; but that which is prepared one Year, is still better before it be used ; during which time it should be often turn'd, to rot the Turf, and break the Clods ; whereby it will be render'd very light, and easy to work ; and about the Beginning of *September* you should carry it into the Garden, and make the Borders, which must be raised in Height proportionable to the Moisture of the

Garden ;

Garden ; for if the Ground be very wet, it will be adviseable to lay some Rubbish in the Bottom of the Border to drain off the Moisture, and to prevent the Roots of the Trees from running downward ; then raise the Border of Earth at least a Foot, or in very wet Land two Feet, above the Level of the Ground, so that the Roots of the Trees may always remain dry : but if the Ground be pretty dry, the Borders should not be raised above six or eight Inches higher than the Surface ; which will be sufficient to allow for their sinking.

As to the Breadth of these Borders, that can't be too great ; but they should never be less than six or eight Feet broad where Fruit-trees are planted : for when the Borders are made very narrow, the Roots of the Trees will be so confin'd in four or five Years time, that they will seldom thrive well after. The Depth of these Borders should not be greater than two Feet ; for where they are prepared to a great Depth, it only entices the Roots of the Trees downward, which may be the Cause of their future Barrenness ; for their Roots, being got down below the Influences of the Sun and Showers, imbibe a great Quantity of crude Juices ; which only add to the luxuriant Growth of the Trees, and destroy their Fruitfulness : besides, whatever Fruit are produced from such Trees, are not near so well-tasted, as are those which grow upon those Trees whose Roots lie near the Surface, and enjoy the kindly Benefit of the Sun's Heat, to correct and digest whatever Crudities there may be in the Earth.

Your Borders, being thus prepared, should lie about three Weeks or a Month to settle ; by which time the Season for Planting will be come,

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which should be perform'd as soon as the Leaves begin to decay, that the Trees may take Root before the Frost comes on to prevent them. In the Choice of the Trees, if they are to be procured from a Nursery, never take such as have large luxuriant Shoots, or that stand in the Middle of the Nursery ; but rather those which grow near the Outside, whose Shoots are generally of a red Colour, and the Joints close together : for those which have produced very large Shoots, when they are cut down, very often die after the Knife ; or if they do shoot, they commonly produce luxuriant Branches, which are not disposed for Bearing. Then you should carefully take up the Trees out of the Nursery, so as not to break or bruise their Roots ; and with a sharp Knife you must prune the extreme Parts of them, and cut off smooth any broken or bruised Roots ; as also all the small Fibres should be taken off, for the Reasons before given.

And having thus prepared your Trees, you should measure out their Distance, which ought never to be less than twelve Feet ; but where the Ground is very good, they should be planted fourteen Feet asunder. This, I doubt not, will be thought too great a Distance by many Persons, especially since it is contrary to the general Practice at this time : but I am satisfied, whoever shall try the Experiment, will find it no more than is sufficient for these Trees, where they are rightly managed ; for if they take kindly to the Soil, their Branches may be so train'd, as to furnish all the lower Part of the Wall in a few Years ; which is what should be principally regarded, and not, as is too often the Practice, run up the Shoots in Height, and leave all the lower

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Part of the Tree destitute of bearing Wood ; so that, in a few Years, there will not be any Fruit but upon the upper Part of the Trees ; which also must be the Case where they are planted too close ; because there being no room to extend the Branches on either Side, they are obliged to lead them upright ; which produces the before - mentioned ill Effect.

There may also be some Persons, who may think this Distance too small for these Trees ; because Plums, Cherries, and most other Sort of Fruit-trees. require much more room : but when it is consider'd, that Peach and Nectarine-trees produce their Fruit only upon the former Year's Wood, so that the Shoots of these Trees must be annually shortened in every Part of them, to obtain bearing Wood, therefore the Trees may be kept in much less Compass than those of any other Sort of Fruit, and thereby every Part of the Wall may be constantly supplied with bearing Branches : for when the Trees are planted at a great Distance, the Branches are often extended to such Lengths, as to leave the Middle of the Trees naked.

And here I can't help taking notice of another very great Error in planting Wall-fruit ; which is, the placing Standard or Half-standard-trees between the others, to cover the upper Part of the Wall, and to produce Fruit, until the Trees underneath are grown up sufficient to furnish the Walls, when the Standards are to be taken away. This is done without considering, that the greater Number of Trees which are planted in a small Compass, the less Nourishment they can receive, and so, consequently, must be the weaker ; for the same Space of Ground

can't nourish twenty Trees equally as well as it could ten : so that whatever Strength the Standard - trees may have, the Dwarfs will be proportionably weaker : and it is a common Observation, that most Trees extend their Roots as far under-ground, as their Branches spread above-ground ; so that there should always be the same Allowance given to the Wall-trees, if we would have them strong and vigorous ; therefore the building very high Walls for Fruit is to no Purpose ; for a ten or twelve Feet Wall will be sufficient for most Sorts of Fruit, except Pears.

But to return to Planting : After you have mark'd out the Places where each Tree is to stand, you must with your Spade make an Hole wide enough to receive the Roots of the Tree ; then you should place it down, observing to turn the Bud outward, that the wounded Part of the Stock may be hid ; and let the Stem of the Tree be placed about four or five Inches from the Wall, with its Head inclining thereto ; then fill in the Earth with your Hands, observing to break the Clods, that the Earth may fall in between the Roots, so as no void Spaces may be left about them. You should also gently shake the Tree with your Hands, to settle the Earth down the better ; then with your Foot gently press down the Earth about the Stem ; but do not tread it down too hard, which is many times a very great Fault : for when the Ground is inclinable to bind, the treading of it close doth often render the Ground so hard, as that the tender Fibres of the Roots can't strike into it ; whereby the Tree remains at a Stand for some time ; and if the Earth be not loosen'd in time, it frequently dies : so that whenever you observe the Earth

Earth of your Border to be bound, either by great Rains, or from any other Cause, you should fork and loosen it again; observing always to do it in dry Weather, if in Winter or Spring; but in Summer it should be done in a moist Season.

Although I have here given Directions, for the Choice of Trees from the Nursery, after the usual Method of planting these Trees; which is, that of taking such as have made one Year's Shoot; yet I would prefer those which were budded the preceding Summer, and have made no Shoot; for if the Bud is sound and plump, and the Bark of the Stock well closed, where the Bud is inserted, there will be no Danger of its growing; and when the Bud has shot to the Length of five or six Inches, if it is stopp'd by pinching off the Top, it will put out lateral Branches, which may be trained to the Wall; and this will prevent any cutting off the Head: for these Trees do not care for those large Amputations, especially some of the more tender Sorts. And by this Method of planting these Trees in Bud, no time will be lost; when it is considered, that the Trees which have shot, must be cut down, and there is an Hazard of their shooting again: therefore I am convinced from Experience, that it is the best Method.

After you have thus planted your Trees, you should fasten their Heads to the Wall, to prevent their being shaken by the Wind; which would disturb their Roots, and break off the tender Fibres soon after they were produced, to the no small Prejudice of the Trees: you should also lay some Mulch upon the Surface of the Ground about their Roots, before the Frost sets in, to prevent it from penetrating the Ground; which

would injure, if not destroy, the small Fibres.

These Things being duly observed, they will require no farther Care till the *February* following; toward the Latter-end of which Month, or the Beginning of *March*, according as the Season is earlier or later, you must cut off the Heads of the new-planted Trees, leaving only four or five Eyes above the Bud; in doing of which, you must be very careful not to disturb their Roots: to prevent which, you should place your Foot down close to the Stem of the Tree, and take fast hold of that Part of the Stock below the Bud with one Hand, to hold it steady, while with the other Hand you gently slope off the Head of the Tree with a sharp Knife at the intended Place, which should always be just above an Eye: this should always be done in dry Weather; for if there should be much Rain soon after it is done, the Wet will enter the wounded Part, and damage the Tree: nor should it be done in frosty Weather, for the same Reason; for that would enter the wounded Part, and prevent its healing over. After you have headed the Trees, you should gently loosen the Earth of the Borders, to admit the Fibres of the Roots: but you must be very careful, in doing of this, not to cut or bruise their new Roots, which would also damage them: and if the Mulch which was laid about their Roots in Autumn be rotten, you may dig it into the Border at some Distance from the Roots of the Trees; and when the dry Weather comes on, you should pare off some Turf from a Pasture-ground, which should be laid upon the Surface of the Border about the Roots of the Trees, turning the Grass downward: which

will preserve a gentle Moisture in the Earth. better than any other Sort of Mulch: and this will not harbour Insects, as most Sorts of Dung and Litter do, to the no small Detriment of the Trees.

In watering of these Trees, you should observe to do it with a Nessel upon the Watering-pot, so as to let it out in Drops: for when it is hastily pour'd down, it causes the Ground to bind; and if you water over the Head of the Tree, it will be of great Service to it. Your Waterings should not be repeated too often, nor should they be given in great Quantity; both which are very injurious to new-planted Trees.

In the middle of *May*, when these Trees will have several Shoots six or eight Inches in Length, you should nail them to the Wall; observing to train them horizontally, rubbing off all fore-right Shoots, or such as are weak, whereby those which are preserved will be much stronger: but if there are not more than two Shoots produced, and those very strong, you should at the same time nip off their Tops; which will cause each of them to push out two or more Shoots, whereby the Wall will be better supplied with Branches: you must also continue to refresh them with Water in dry Weather, during the whole Season, otherwise they will be apt to suffer; for their Roots having but little hold of the Ground the first Year after transplanting, if the Season should prove very dry, it will greatly retard their Growth, if due care be not taken to water them.

In the Beginning of *October*, when you observe the Trees have done shooting, you should prune them; in doing of which, you must shorten the Branches in proportion to the Strength of the Tree; which,

if strong, may be left eight Inches long; but if weak, should be shortened to four or five: then you should train them horizontally to the Wall (as was before directed), so that the Middle of the Trees may be void of Branches; for that Part of the Tree will be easily furnished with Wood afterwards; whereas, if the Shoots are train'd perpendicularly to the Wall, those which are the strongest will draw the greatest Share of the Sap from the Roots, and mount upward: so that the Side-branches will be deprived of their Nourishment, and grow weaker, until they, many times, decay; and this is the Reason, that we see so many Peach-trees with one upright Stem in the Middle, and the two Sides wholly unfurnished with Branches; whereby the Middle of each Tree cannot produce any Fruit, that being fill'd with large Wood, which never produces any bearing Shoots: nor can the two Sides of the Trees be regularly fill'd with fruitful Branches, when this Defect happens to them; therefore this Method should be carefully observ'd in the training up young Trees; for when they are permitted to run into Disorder at first, it will be impossible to reduce them into a regular healthful State afterward, the Wood of these Trees being too soft and pithy to admit of being cut down again (as may be practis'd on many other hardy Fruit-trees, which will shoot out vigorously again); whereas these will gum at the Places where they are wounded, and in a few Years intirely decay.

The Summer following, when the Trees begin to shoot, you should carefully look over them, to rub off all fore right Buds, or such as are ill-placed, and train those which are design'd to remain horizontally to the

the Wall, in their due Order as they are produced ; for this is the principal Season when you can best order the Trees as you would have them ; whereas, if they are neglected until *Midsummer*, as is the common Practice, a great Part of the Nourishment will be exhausted by fore-right Shoots, and other useleſs Branches, which muſt afterward be cut off ; and hereby the remaining Shoots will be render'd very weak, and perhaps ſome Part of the Wall be intirely unfurniſh'd with Branches ; which might have been eaſily ſupplied in the Beginning of *May*, by ſtopping ſome of the ſtronger Shoots in ſuch Parts of the Tree where there is a Neceſſity for more Branches ; which would cauſe each of them to ſhoot out two or more Side-branches below the Ends of the Shoots, which may be guided into the vacant Parts of the Tree, as they are produced, ſo as that every Part may be regularly furniſh'd with proper Wood ; which is the greateſt Beauty and Excellency of Wall-trees : but you ſhould always forbear ſtopping the Shoots in Summer, where there is not a Neceſſity for Branches to fill the Wall ; for there cannot be a greater Fault committed, than that of multiplying the Number of Shoots, ſo as to cauſe a Confuſion, whereby the Branches will be too weak to produce good Fruit : beſides, when they are too cloſe laid in upon the Wall, the Air is excluded from the Shoots by the great Number of Leaves, ſo that they are never duly ripen'd ; and confequently, what Fruit is produc'd thereon, can't be ſo well-taſted as thoſe which are produc'd upon ſuch Trees where the Shoots receive all the Advantages of Sun and Air to mature them.

Thus having ſet down the Method of training up young Trees, I ſhall now proceed to their Pruning, and future Management : which, being the ſame as with full-grown Trees, will ſerve for general Directions how to manage theſe Sorts of Fruit.

In the Pruning of Peach and Nectarine-trees (which require the ſame Management), the two following Rules ſhould be ſtrictly obſerved ; *viz.* Firſt, That every Part of the Tree be equally furniſh'd with bearing Wood ; and, Secondly, That the Branches are not laid in too cloſe to each other, for the Reaſons before laid down (with ſome others which will be hereafter inſerted). As to the firſt, it muſt be obſerv'd, That all theſe Trees produce their Fruit upon the young Wood, either of the preceding Year, or, at moſt, the two Years Shoots, after which Age they do not bear : therefore the Branches ſhould be pruned ſo as to cauſe them to produce new Shoots annually in every Part of the Tree ; which cannot be done in the ordinary Method of Pruning, where Perſons neglect their Trees at the Season when they are moſt capable of Management, which is in *April*, *May*, and *June* ; at which time the luxuriant Growth of Branches may be check'd by pinching, and new Shoots produc'd where they are wanting, by ſtopping the neighbouring Branches ; which Shoots, being produc'd at that Season, will have time enough to ripen, and gain Strength, before the Autumn comes on ; whereas all thoſe Shoots which are produc'd after the middle of *June*, will be crude and pithy ; and though they may ſometimes produce a few Bloſſoms, yet thoſe rarely bring Fruit ; nor are the future Branches good which are produced

from such Wood, the Vessels being too large to strain the Juices, so that they easily admit of great Quantities of crude Nourishment to pass through them. Therefore those Persons who only regard their Wall-trees at two different Seasons, *viz.* the Winter and Midsummer Pruning, cannot possibly have them in good Order; for when all the Branches which were produced in the Spring, are permitted to remain until the Middle or Latter-end of *June* (as is the common Practice), some of the most vigorous will draw the greatest Part of the Nourishment from the weaker Branches; which, when the strong ones are taken off, will be too weak to produce fair Fruit; and hereby the Strength of the Trees is exhausted, to nourish the useless Branches, which are annually cut off again: and thus are too many Trees mangled, and at the same time Complaints made of their Luxuriancy; because two or three Shoots, by drawing in the greatest Share of the Nourishment, grow very strong and woody (whereas, if the Nourishment had been equally distributed to a regular Quantity of Branches, there would be no Sign of their too great Strength); until, by often cutting off these vigorous Branches, the Trees are either intirely destroy'd, or, at least, render'd so weak as not to be able to produce Fruit: for although by thus weakening the Branches, it is often the means to produce a good Number of Blossoms (as may many times be observ'd also upon autumnal Shoots); yet the utmost of their Strength is spent in expanding the Flowers, so that they rarely produce Fruit; and very often the greatest Part of the Branches die soon after; which is supposed to be occasion'd by a Blight (as I have elsewhere said) when in reality it is nothing less than

the Fault of those who have the Management of the Trees. It is therefore of the greatest Consequence to the Wall-trees, especially of these Sorts, to go over them two or three times in the Months of *May* and *June* to rub off all irregular Shoots, and to train in the Branches that are left in due Order to the Wall, that each Shoot may have an equal Advantage of Sun and Air; both of which are absolutely necessary to ripen and prepare the Wood for the next Year's Bearing.

And by duly observing the Trees at this Season, there will not be Occasion for so much Cutting, as is often practis'd on Peach-trees, to their great Injury; for their Wood-branches are generally soft, tender, and pithy, which, when greatly wounded, are not healed over again so soon as many other Sorts of Trees; and the Wet, insinuating into the wounded Parts, doth often cause the Branches to canker and die; which may be intirely avoided by the gentle, easy Method of pinching and rubbing off the Buds in the Spring-season, which never makes any Wounds on the Tree: and hereby a vast deal of Labour is saved; for one Person, who is ready at this Business, will go over a great Quantity of Walling in a Day; whereas if the Trees are permitted to grow rude all the Spring, they will require six times the Labour to reduce them into Order: besides, it is a great Disadvantage to the Fruit, in permitting the Branches of the Trees to extend from the Wall, and shade them: and when they have grown under the Shelter of these Branches and Leaves all the Spring, until *Midsummer*, then by pruning off and shortening most of these Shoots, and nailing the others close to the Wall, the Fruits are suddenly exposed

exposed to the Sun and Air, whereby they receive a very great Check, and are not only retarded in their Growth, but often rendered ill-tasted ; and have tough Skins.

The Distance which the Branches of these Trees should be allow'd against the Wall, must be proportion'd to the Size of the Fruit, or the Length of the Leaves : for if we observe how the Branches of Trees are naturally disposed to grow, we shall always find them placed at a greater or less Distance, as their Leaves are larger or smaller, as I have already observed under the Article of *Leaves*: and there is no surer Guide to a curious Artist than Nature, from whence a Gardener should always be directed in every Part of his Profession; since his Business is to aid and assist Nature, where she is not capable of bringing her Productions to Maturity; or where there is room, to make considerable Improvements by Art ; which cannot be any otherwise effected, than by gently assisting her in her own Way.

But to return to Pruning of these Trees : The Branches being carefully trained in, as before directed, in the Spring and Summer-seasons, we come now to treat of the Winter-pruning, which is commonly performed in *February* or *March* : but the best Season for this Work is in *October*, when their Leaves begin to fall, which will be early enough for their Wounds to heal, before the Frost comes on ; so that there will be no Danger of their being hurt thereby : and the Branches of the Trees being proportion'd to the Strength of the Roots at that Season, all the ascending Sap in the Spring will be employed to nourish only those useful Parts of the Branches which are left ; whereas, if they are left unpruned till *Februa-*

ry, the Sap in the Branches being then in Motion, as may be observed by the swelling of the Buds, the greatest Part of it will be drawn up to the extreme Parts of the Branches, to nourish such Blossoms as must be afterwards cut off : and this may be easily known by observing the strongest Shoots at that Season, when you will find the extreme Buds to swell faster than most of the lower ones ; for there being no Leaves then upon the Branches, to detain the Sap to nourish the lower Buds, the upper ones will always draw from those below.

But it is a constant Practice amongst Gardeners, founded upon long Experience, to prune weak Trees early in the Winter, and luxuriant Trees late in the Spring, in order to check their Luxuriancy. Now it is evident, that this Check does not proceed from any considerable Loss of Sap at the Wounds of the pruned Tree (excepting a few of the bleeding Trees, when cut at that Season) ; but must arise from some other Cause ; for by several Experiments made by the Rev. Dr. *Hales*, in fixing Mercurial Gauges to the Stems of fresh cut Trees, he found those Wounds were constantly in an imbibing State, except the Vine in the Bleeding-season.

When a weak Tree is pruned early in the Beginning of Winter, the Orifices of the Sap-vessels are closed up long before the Spring ; and consequently, when, in the Spring and Summer, the warm Weather advances, the attracting Force of the perspiring Leaves is not then weakened by many Inlets from fresh Wounds ; but is wholly exerted in drawing Sap from the Root : whereas, on the other hand, when a luxuriant Tree is pruned late in the Spring, the Force of its Leaves to

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attract Sap from the Root will be much spent and lost, at the several fresh-cut Inlets.

Besides, if it were no Advantage to the Trees to prune them at this Season (which I think no one will have Reason to doubt, after making the Trial); but that it only succeeds as well as the Spring-pruning; yet there is a great Advantage in doing of it at *Michaelmas*; for that being a much more leisure Season with Gardeners than the Spring, they will have more time to perform it carefully; and then they will not have too many Things come together, which may require to be immediately executed: for the Spring being the principal Season for cropping their Kitchen-gardens, and attending their Hot-beds, if they are disengaged from the Business of Pruning at that time, it will be of great Advantage, especially where there is a great Quantity of Walling. And there is also another Benefit in Pruning at this Season; which is, the having the Borders at Liberty to dig and make clean before the Spring; so that the Garden may not appear in Litter at that Season.

Having said thus much concerning the time of Pruning, I shall now proceed to give some general Directions how it is to be performed on Peach and Nectarine-trees, which require a very different Management from most other Sorts of Fruits.

In Pruning of these Trees, you should always observe to cut them behind a Wood-bud, which may be easily distinguished from the Blossom-buds, that are shorter, rounder, and more turgid, than the Wood-buds: for if the Shoot have not a leading Bud where it is cut, it is very apt to die down to the next leading Bud; so that what Fruit may

be produced above that, will come to nothing, there being always a Necessity of a leading Bud to attract the Nourishment; for it is not sufficient that they have a Leaf-bud, as some have imagined, since that will attract but a small Quantity of Nourishment; the great Use of the Leaves being to perspire away such crude Juices as are unfit to enter the Fruit: the Length you should leave these Branches, should be proportion'd to the Strength of the Tree, which, in an healthy strong Tree, may be left ten Inches or more; but, in a weak one, they should not be more than six Inches: however, in this you must be guided by the Position of a leading Bud; for it is better to leave a Shoot three or four Inches longer, or to cut it two or three Inches shorter, than we would choose to do, provided there be one of these Buds; it being absolutely necessary for the future Welfare of the Tree: you should also cut out intirely all weak Shoots, tho' they may have many Blossom-buds upon them; for these have not Strength enough to nourish the Fruit, so as to give it a kindly Flavour; but they will weaken the other Parts of the Tree.

In nailing the Shoots to the Wall, you must be careful to place them at as equal Distances as possible, that their Leaves, when come out, may have room to grow, without shading the Branches too much; and you should never nail them upright, if it can be prevented; for when they are thus trained, they are very subject to shoot from the uppermost Eyes: and the lower Part of the Shoots will thereby become naked.

There is not any thing in the Business of Gardening, which has more exercised the Thoughts of the Curious, than how to preserve their
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tender Sorts of Fruit from being blighted in the Spring of the Year ; and yet there has been little written upon this Subject, which is worth Notice. Some Persons have proposed Mattresses of Straw or Reeds to be placed before the Fruit-trees against Walls, to prevent their being blasted : others have directed the fixing horizontal Shelters in their Walls, to prevent the perpendicular Dew or Rain from falling upon the Blossoms of the Fruit-trees, which they supposed to be the chief Cause of their Blighting : but both these Contrivances have been far from answering the Expectations of those Persons who have put them in Practice, as I have elsewhere shewn ; therefore it may not be improper to repeat some Things in this Place, which I have before mentioned, in relation to this Matter. And,

First, I have already said, that the Blights, which are so often complained of, do not so much proceed from any external Cause, or Inclemency in the Season, as from a Dis temper or Weakness in the Trees : for if we observe the Trees at that Season, where they are the most subject to what is called a Blight, we shall find the Branches very small, weak, and not half ripen'd, as also trained in very close to each other ; these Branches are, for the most part, full of Blossom-buds (which is chiefly occasion'd by their want of Strength). These Buds do indeed open ; and, to Persons not skill'd in Fruit-trees, shew a great Prospect of a plentiful Crop of Fruits ; whereas the whole Strength of the Branches is spent in nourishing the Flowers ; and, being unable to do any more, the Blossoms fall off, and the small Efforts of the Leaf-buds are check'd ; so that, many times, the greatest Part of the Branches die away ; and this is call-

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ed a great Blight : whereas at the same time it may be often observ'd, that some Trees of a different Sort, nay, even some of the same Sort, which were stronger, tho' placed in the same Soil, expos'd to the same Aspect, and subject to the same Inclemency of Air, have escaped very well, when the weak Trees have appeared to be almost dead ; which is a plain Indication, that it proceeds from some Cause within the Tree, and not from any external Blight : all this will therefore be remedied, by observing the foregoing Directions in the Pruning and Management of the Trees, so as never to overburden them with Branches, nor to suffer any Part of the Trees to exhaust the whole Nourishment from the Root, so as to cause the other Parts to be very weak ; but to distribute the Nourishment equally to every Shoot, that there may be none too vigorous, at the same time that others are too weak ; and by continually rubbing off useless or fore-right Shoots, as they are produced, the Strength of the Trees will not be spent, to nourish such Branches as must be afterwards cut out, which is too often seen in the Management of these Trees. And,

Secondly, It sometimes happens, that the Roots of these Trees are buried too deep in the Ground, which, in a cold or moist Soil, is one of the greatest Disadvantages that can attend these tender Fruits ; for the Sap which is contained in the Branches, being by the Warmth of the Sun put strongly into Motion early in the Spring, is exhausted in nourishing the Blossoms ; and a Part of it is perspired thro' the Wood-branches, so that its Strength is lost before the Warmth can reach to their Roots, to put them into an equal Motion

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Motion in Search of fresh Nourishment, to supply the Expence of the Branches; for want of which, the Blossoms fall off and decay, and the Shoots seem to be at a Stand, until the farther Advance of the Warmth penetrates to the Roots, and sets them in Motion; when suddenly after, the Trees, which before look'd weak and decaying, do make prodigious Progress in their Shoots; and, before the Summer is spent, are furnished with much stronger Branches than those Trees which have the full Advantage of Sun and Showers, and that are more fruitful and healthy; which must certainly be owing to the former Observation, as also to their drawing in a great Quantity of crude Moisture; which, tho' productive of Wood, is yet unkindly for Fruit: if, therefore, this be the Case, there is no way of helping this, but by raising up the Trees, if they are young; or, if they are too old to remove, it is the better way to root them out, and make new Borders of fresh Earth, and plant down young Trees; for it is a great Vexation to be at the Trouble and Expence of pruning and managing these Trees, without having the Pleasure of reaping any Advantage from them; which will always be the Case where the Trees are thus injudiciously planted. Or,

Thirdly, This may proceed from the Trees wanting Nourishment, which is many times the Case, where they are planted in an hard gravelly Soil, in which it is the common Practice to dig Borders three or four Feet wide, and three Feet deep into the Rock of Gravel, which is filled with good fresh Earth, into which the Trees are planted, where they will thrive pretty well for two Years, until their Roots reach the Gravel, where they are confin'd, as

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if planted in a Pot; and for want of proper Nourishment, the Branches continually decay every Year. This cannot be help'd, where the Trees have been growing some Years, without taking them intirely up, or by digging away the Gravel from their Roots, and adding a large Quantity of fresh Earth, that may afford them a Supply of Nourishment: but where a Person intends to plant Fruit-trees upon such a Soil, I would advise him never to dig into the Gravel; but, on the contrary, to raise the Borders at least two Feet above it, with good fresh Earth; which, if made of a considerable Width, so that their Roots may have room to extend themselves upon the Gravel, they will enjoy the kindly Influences of the Sun and Showers, and produce delicate well-flavour'd Fruit in plenty.

But if the Unfruitfulness of the Trees do not proceed from any of the before-mentioned Causes, and is the Effect of unkindly Seasons, then the best Method yet known is, in frosty dry Weather, when little Dew falls, to sprinkle the Branches of the Trees gently with Water in the blossoming Season, and while the young-set Fruit is tender; which should always be done before Noon, that the Moisture may evaporate before the Night comes on; and if in the Night you carefully cover the Trees with Mats, Canvas, or some such light Covering, it will be of great Service to them: however, where the Trees are strong and vigorous, they are not so liable to suffer by a small Inclemency, as are those which are weak; so that there will be few Seasons in which there may not be Hopes of a moderate Quantity from them; tho' there should be no Covering used; for where these Coverings are used, if it is not performed

performed with great Care and Diligence, it is much better to have no Covering, but trust to the Clemency of the Season : for if the Coverings are kept too close, or continued too long, the Trees will receive more Injury hereby, than from being constantly exposed; or if after they have been covered for some time, they are then incautiously removed, so as to expose the Trees too suddenly to the open Air, they will suffer more thereby than if they had not been covered : however, I must repeat in this Place what has been before mentioned, under another Article, of a Management which has been generally attended with Success ; which is, The putting up two Feather-edge Deal-boards, joined together, over the Top of the Trees, so as to form a Penthouse, to cast off perpendicular Wet : these should be fixed up when the Trees begin to blossom, and should remain till the Fruit is well set, when they should be taken down, to admit the Dew and Rain to the Leaves and Branches of the Trees, which must not be longer kept off : and where the Wall is long, and is exposed to Draughts or Currents of Wind, if at the Distance of forty Feet from each other are fixed some cross Reed-hedges, to project about ten Feet from the Wall, these will break the Force of the Wind, and prevent its destroying of the Blossoms; and these may be removed away, as soon as the Danger is over : where these Things have been practised, they were generally attended with Success ; and as there will be no Trouble of covering and uncovering in this Method, after they are fixed up, there can be no Danger of Neglect, as very often is the Case when the Trouble is great, or to be often repeated.

When your Fruit is set, and grown to the Bigness of a Small-nut, you should go over the Trees, and thin them, leaving them at least five or six Inches asunder ; for when they are permitted to remain in Bunches, as they are often produced, the Nourishment which should be employed wholly to the Fruits design'd to stand, will be equally spent amongst the whole Number ; a great Part of which must be afterward pulled off ; so that the sooner this is done, the better it will be for the remaining Fruit : and if it should sometimes happen, that a Part of those left, by any Accident, should be destroyed, yet the remaining ones will be much the larger and better-tasted for it ; and the Trees will gain more Strength ; for a moderate Quantity of Fruit is always preferable to a great Crop ; the Fruit, when but few, will be much larger, better tasted, and the Trees in a Condition to bear well the succeeding Years : whereas when they are overcharged with Fruit, it is always small, ill-tasted ; and the Trees are generally so much weakened thereby, as not to be in a Condition to bear well for two Years after : so that, upon the Whole, it is much better to have a lesser Number of Fruit than is commonly esteemed a Crop, than to have too many ; since the Fruit, and also the Trees, are benefited thereby. The Quantity of Fruit to be left on large full-grown Trees, should never be greater than five or six dozen upon each ; but on middling Trees, three or four dozen will be enough.

If the Season should prove hot and dry, it will be proper to draw up the Earth round the Stem of each Tree, to form an hollow Basin, of about six Feet Diameter ; and cover the Surface of the Ground in this

Basin

Basin with Mulch; and once or twice a Week, according to the Heat and Drought of the Season, pour down sixteen or eighteen Gallons of Water to the Root of each Tree; or where there is an Engine, which will disperse the Water in gentle easy Drops, like Rain, if the same, or a larger Quantity of Water, is sprinkled all over the Branches of the Trees, this, soaking down to the Roots, will keep the Fruit constantly growing; which will prevent their falling off the Trees, as they generally do where this Method is not practised; and the Fruit, being thus constantly nourished, will be much better tasted; and hereby the Trees will be maintained in Vigour; so that it is what I can, from long Experience, recommend as one of the most necessary Things to be practised by all Lovers of good Fruit.

When the Peach-trees are carefully managed in the Spring of the Year, according to the Rules before laid down, all the Nourishment which the Roots can supply will be usefully employed in nourishing such Shoots only as are to be continued, as also the Quantity of Fruit which is proper for each Tree; therefore both must of Consequence be rendered better; for where there is not this Care, the Trees soon grow ragged, and are not furnished properly with Branches; and those Shoots which are produced, are some very weak, and others very luxuriant, whereby the Trees are rendered very unsightly, as also unhealthy; and never continue many Years fruitful: and by thus training of the Branches to the Wall, as they are produced, the Fruit will be always equally exposed to the Sun and Air; which in the common Method of managing these Trees, by letting their Branches grow rude all the Spring, they are

deprived from; and consequently do not receive the Benefit from these equal to those which are properly managed: and by the timely rubbing off useless and luxuriant Shoots, it will save much Trouble, and prevent the Use of the Knife in Summer, which is very hurtful to these Trees; for there will be no need to shorten any of the Shoots in Summer.

When these Rules are duly executed, there will be no Occasion to pull off the Leaves of the Trees, to admit the Sun to the Fruit, which is often practised; for if we consider, that the Leaves are absolutely necessary to cherish the Blossom-buds, which are always form'd at the Footstalks of the Leaves, the pulling them off before they have perform'd the Office assign'd them by Nature, is doing great Injury to the Trees: therefore I caution every one against that Practice.

It is a common Opinion which has for some Years prevailed, even among Persons of good Understanding, That Peach-trees are not long-liv'd; therefore should be renewed every twenty Years: but this is a great Mistake; for I have eaten some of the finest Peaches of various Kinds, which grew on Trees which had been planted above fifty Years: and I am convinced, by Experience, that when the Trees are budded upon proper Stocks, and carefully planted and managed, they may be continued fruitful and healthy sixty Years and upward; and the Fruit produced on these old Trees will be much better flavour'd than any of those upon young Trees: but I suppose the Foundation of the above Opinion was taken from the *French*, who generally bud their Peaches upon Almond-stocks, which are of short Duration; these seldom lasting good more than twenty Years: but
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this being seldom practised in *England*, the Case is widely different ; nor indeed should we fetch our Examples from that Nation, where the Professors of the Art of Gardening are at least a Century behind the *English* ; and, from their present Disposition, seem unlikely to overtake them ; for they depart from Nature in almost every Part of Gardening, and are more pleased with introducing their little Inventions of pruning and managing their Fruit-trees, according to their own Fancy, than they are careful to draw their Instructions from Nature, from whence the true Art is to be obtained ; so that in very few Instances Gardeners should deviate from Nature, unless it be in those Particulars, where Art may be practised to the greatest Advantage ; which is in the procuring many Sorts of esculent Plants and Fruits earlier and better flavour'd than can be obtained without ; in which they are extremely deficient ; and herein they trust too much to Nature, and use too little Art.

In one of the most celebrated of their Authors, who treats very particularly of Fruit-trees, there are Directions for planting of Peach-trees twelve Feet asunder : and at the same time he advises the planting of Pear-trees but nine or ten Feet Distance ; and yet he says, That a Pear-tree in Health will shoot three Feet on each Side every Year : therefore he does not allow room for these Trees to grow more than two Years before they meet. There is also another thing positively laid down by the same Author ; which is, never to lay any Dung upon the Borders where Fruit-trees are growing ; which he says will render the Fruit ill-tasted : and this Opinion has too generally prevailed in *England* ; but this has been explo-

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ded by one of his own Countrymen, who affirms that, from upward of twenty Years Experience, those Trees where the Borders had been constantly dung'd, always produced the most delicious Fruit ; and the Trees were in the greatest Vigour : and the same Gentleman mentions the Practice of the Gardeners at *Montreuil*, near *Paris*, who have for some Generations been famous for the Culture of Peaches ; and are as careful to dung the Borders where their Peach trees grow every other Year, as the Kitchen-gardeners are for their Legumes.

And from a long Experience it is, that I can subscribe to the Truth of this ; for in some particular Gardens, where the best Fruit grew that I have yet tasted, the Ground was constantly dunged every other Year ; therefore it is what I must recommend to the Practice of every curious Person ; with this Caution, always to use such Dung for their Borders, as is well rotted ; and to dig it into the Borders in *November*, that the Rain may wash down the Salts before the Spring comes on ; and where the Ground is very loose or sandy, it will be the best way to make use of Neats-dung, which is cooler than that of Horses ; but for cold strong Land the latter is to be preferred.

If the Ground is well trenched every Year, about the Roots of the Trees, it will be of great Service to them ; and where the Soil is subject to bind very close, if it is forked two or three times in a Year, to loosen the Surface, it will greatly help the Trees : the Borders should not be croud-ed with any large-growing Plants, which will draw away the Nourishment from the Trees ; therefore when any Sort of Kitchen-herbs are planted on these Borders, they should be only such as are of small Growth,
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and which may be taken off early in the Spring: and if this is carefully observed, the cultivating small Things on these Borders can do no Harm; because the Ground will be stirr'd the oftener, on account of these small Crops, than perhaps it would have been, when no Use was to be made of the Borders. These Rules which are here laid down, if properly observed, will direct any curious Person how to have plenty of good Fruit; as also to preserve the Trees in Vigour a great Number of Years.

PERSICARIA, Arse-smart.

The Characters are;

It is a Plant with an apetalous Flower, having several Stamina, or Chives, which arise from the multifid Calyx: the Pointal afterward becomes an oval-pointed smooth Seed, inclosed in the Capsule, which was before the Flower-cup: to which may be added, It hath jointed Stalks, and the Flowers are produced in Spikes.

The Species are;

1. PERSICARIA *mitis maculosa*. C. B. P. Dead or Spotted Arse-smart.
2. PERSICARIA *vulgaris acris*, seu *Hydro-piper*. J. B. Water-pepper, Lake-weed, or Arse-smart.
3. PERSICARIA *major, lapathi foliis, calyce floris purpureo*. Tourn. Greater Arse-smart, with Dock-leaves, and a purple Flower-cup.
4. PERSICARIA *Orientalis, Nicotianæ folio, calyce florum purpureo*. T. Cor. Eastern Arse-smart, with a Tobacco-leaf, and a purple Flower-cup.

There are several other Species of this Plant, which grow wild upon moist Soils and Dunghills, in divers Parts of England: but as they are rarely cultivated in Gardens, and being Plants of no Use at present, I omit enumerating them in this Place.

The two first Sorts here mention-

ed are sometimes used in Medicine; the latter of which is a very sharp acrid Plant, from whence it had its Name of Water-pepper and Arse-smart: this is a perennial Plant, which grows in great Plenty on the Sides of Ditches, and in moist Places, almost in every Part of England; and is a very bad Weed, if once it gets Possession in a Garden; for the Roots extend themselves greatly underground, and arise from every Joint, as doth Couch-grass; so that it is with great Difficulty extirpated.

The first is an annual Plant, that propagates itself in great Plenty from Seeds; which falling upon the Ground, the Plants rise the succeeding Spring, and spread over the Ground, where-ever they are permitted to grow; so that they should not be suffered to remain in Gardens: these are both gathered in the Fields in Autumn for medicinal Use, when they are in Perfection.

The third Sort is cultivated in some curious Gardens for Variety, it making an handsome Appearance during the Season of its Flowering: this may be propagated by sowing the Seeds upon a Bed of rich moist Earth in Autumn, soon after they are ripe; and the Plants will come up the Spring following, when they may be transplanted into the Borders where they are to remain: this is also an annual Plant, which requires to be sown every Year, or the Seeds permitted to shed, which will grow better than those which are sown by Art.

The fourth Sort was brought from the Eastern Country by Mons. Tournefort, to the Royal Garden at Paris, from whence it hath been since communicated to several Parts of Europe. This Plant, tho' but an Annual, doth grow to be ten or twelve Feet high, and divides into several Branches, each of which pro-

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produces a beautiful Spike of purple Flowers at their Extremities in the Autumn; which, together with its large green Leaves, and jointed Stalks, make a very grand Figure in the Borders of large Gardens, late in the Season, when few other Plants are in Beauty.

The Seeds therefore should be sown in Autumn, as soon as they are ripe; or, if they are permitted to fall on the Ground, the Plants will come up the Spring following better than when they are sown by Art, as was before observed; for if the Seeds are sown in the Spring, it is very rare, that any of them succeed; and if some few Plants come up from those Seeds sown at that Season, they seldom grow near so strong as those which are produced from the Seeds which fell in Autumn; so that there is no other Culture required to this Plant, but to transplant them out in the Spring, where they are design'd to stand, which should be in large Gardens, giving them great Space; for if they are placed near other Plants, they will shade them intirely from the Sun; and, by continually dripping upon them, will greatly injure them; and if they stand too close, their Beauty is greatly diminished.

When the Plants begin to aspire upward, which is commonly in June, their Side-shoots should be pruned off, to make them advance in Height, and preserve them within Compass; otherwise they are very subject to branch out widely on every Side, so as to become troublesome in a Garden; but when they are pruned up regularly five or six Feet high, they may afterwards be permitted to shoot out Side-branches; since those which are produced above that Height, will never be very long or troublesome, but will add to

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the Beauty of the Plant: this delights in a rich moist Soil, upon which it will grow to a prodigious Height: it produces its Flowers in August and September, which continue in Beauty until the Frost destroys them.

PERVINCA, Periwinkle.

The Characters are;

The Flower-cup consists of one Leaf, which is divided into five long narrow Segments: the Flower also consists of one Leaf, which expands into the Form of a Salver, and is cut into five broad Segments: the Pointal, which arises from the Centre of the Flower-cup, becomes a Fruit, composed of two Husks (or Pods), which contain oblong cylindrical furrow'd Seeds: to which may be added, That this Plant shoots out many long creeping Branches, which strike out Roots at their Joints.

The Species are;

1. PERVINCA *vulgaris angustifolia*, flore cœruleo. Tourn. Common or narrow leav'd Periwinkle, with a blue Flower.
2. PERVINCA *vulgaris angustifolia*, flore albo. Tourn. Common Periwinkle, with a white Flower.
3. PERVINCA *vulgaris latifolia*, flore cœruleo. Tourn. Greater Periwinkle, with a blue Flower.
4. PERVINCA *vulgaris angustifolia*, flore rubente. Tourn. Common Periwinkle, with a redish Flower.
5. PERVINCA *vulgaris angustifolia*, flore pleno, saturate purpureo. Tourn. Common Periwinkle, with a double Flower, of a deep purple Colour.
6. PERVINCA *angustifolia vulgaris variegata ex aureo & viridi*. Boerb. Ind. Common Periwinkle, with yellow striped Leaves.
7. PERVINCA *angustifolia vulgaris variegata ex argenteo & viridi*. Boerb. Ind. Common Periwinkle, with silver-striped Leaves.

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The first Sort grows wild in divers Parts of *England*, and is not so much cultivated in Gardens at present as it was formerly, when it was planted for Edging of Borders; but the Shoots being very apt to root at their Joints, render'd it very difficult to preserve in any tolerable Order; and the Plants, rooting deep in the Ground, greatly exhaust the Goodness of the Soil; so that it is now almost wholly cast out of Gardens.

The second and fourth Sorts are Varieties from the first, differing only in the Colour of their Flowers; as are also the sixth and seventh, which differ in their variegated Leaves, for which they are preserv'd in the Gardens of those who admire striped Plants.

The fifth Sort produces fine double Flowers, which makes a very handsome Appearance during its Season of Flowering; which renders it worthy of a Place in every Garden.

The third Sort grows much larger than the former, and produces large blue Flowers: this is found in Woods, and shady Places, in divers Parts of *England*.

All these Plants multiply exceedingly by their Shoots from the old Roots, which, trailing upon the Ground, strike out Roots in a short time, and may be taken off, and transplanted where they are to remain: and though they are not so proper for a Flower-garden, yet a few Roots of each Sort may be planted in shady Borders under Trees, where few other Plants will thrive, or in small Wilderesses; in which Places, if they are kept within Compass, they make a pretty Variety. The large Sort may be planted under Hedges, in Woods, &c. where it will grow four or five Feet high, and continue a long time in Flower.

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These Plants propagate themselves by Roots so plentifully, that they seldom produce Fruit.

Monf. *Tournefort* says, He could never observe any Fruit upon them either in the Country adjoining to *Paris*, or in *Provence* or *Languedoc*, where they are very common, or in the Neighbourhood of *Lisbon*.

Of all the Botanical Writers before *Tournefort*, *Cæsalpinus* is the only Person who found and described this Fruit: which, he says, is oblong, being two fork'd Husks, arch'd and conjoin'd at their Extremities, containing, for the most part, two oblong Seeds in each.

To have this Plant produce Fruit, Monf. *Tournefort* advises its being planted in a Pot that contains but a small Quantity of Earth; so that the Sap, being prevented from dissipating and spending itself upon nourishing new Shoots, will mount the Stems, and swell the Pointal, which becomes the Fruit; and this, he says, was the Method whereby he obtain'd the Fruit of this Plant, of which he has given a Figure in his *Elements of Botany*.

But notwithstanding what Monf. *Tournefort* has related concerning this Matter, yet I have often observ'd the Fruit upon such Plants as have grown singly on a good Soil: though where their Shoots are permitted to entangle with each other, and grow very close, there is seldom any Fruit produc'd.

PETASITIS, Butter-bur.

The Characters are;

It is a Plant with a flosculous Flower, consisting of many Florets, divided into many Parts, sitting on the Embryo, and contained in a cylindrical Empalement, divided also into many Parts: the Embryo after-ward becomes a Seed furnish'd with Down:

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to which may be added, The Flowers appear before the Leaves.

The Species are ;

1. PETASITES *major* & *vulgaris*. C. B. P. Common Butter-bur, or Pestilent-wort.

2. PETASITES *major*, *floribus pediculis longis insidentibus*. Raii Syn. Greater Butter-bur, with long Footstalks to the Flowers.

3. PETASITES *albus*, *anguloso folio*. J. B. White Butter-bur, with angular Leaves.

4. PETASITES *minor alter*, *tussilaginis folio*. H. R. Par. Lesser Butter-bur, with a Colt's-foot leaf.

The first Sort here mention'd is us'd in Medicine: this grows wild in great Plenty by the Sides of Ditches, and in moist Soils, in divers Parts of England. The Flowers of this Plant appear in the Beginning of March; and after they are past, the green Leaves come up, and grow to be very large.

The second Sort was found by Mr. Jacob Bobart in Oxfordshire, and sent to the Physic-garden at Chelsea: this differs greatly from the former in its Manner of Flowering; for the Flower-stems of this Sort rise near two Feet high, and the Flowers grow upon long Footstalks; whereas the Stems of the common Sort seldom rise above eight or ten Inches high, and the Flowers closely surround the Stalks.

The other two Sorts are preserv'd in Botanic Gardens for Variety; but as they have little Beauty, so they are seldom propagated in other Gardens: they all of them increase greatly by their creeping Roots, and, if placed in a moist Soil, will in a short time over-run a large Compass of Ground.

PETIVERIA, Guiney Henweed, *vulgo*.

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The Characters are ;

It hath a Flower consisting of four Leaves, which are placed almost in the Form of a Cross, from whose Cup rises the Pointal, which afterward becomes the Fruit, which is bordered and cut at the Top, resembling an inverted Shield containing oblong Seeds.

We know but one Species of this Plant ; viz.

PETIVERIA *solani foliis, loculis spinosis*. Plum. Nov. Gen. Petiveria with Nightshade-leaves, and prickly Seed-vessels, commonly call'd Guiney Henweed.

This Name was given to this Plant, by Father Plumier, who discover'd it in America; in Honour to Mr. James Petiver an Apothecary, who was a curious Botanist.

It is a very common Plant in Jamaica, Barbados, and most of the other Islands in the West-Indies, where it grows in shady Woods, and all the Savannas, in such Plenty, as to become a very troublesome Weed; and as this Plant will endure a great deal of Drought, so it remains green, when other Plants are burnt up, which occasions the Cattle to brouze on it; and having a most unfavoury strong Scent, somewhat like wild Garlick, it gives the Cows Milk the same Flavour; and the Cattle which are kill'd soon after feeding on this Plant, have a most intolerable Scent, so that their Flesh is good for little.

In Europe this Plant is preserv'd in the Gardens of those Persons who are curious in Botany: but there is little Beauty in it; and having so strong rank a Scent upon being handled, renders it less valuable. It is propagated by Seeds, which must be sown on an Hot-bed early in the Spring; and when the Plants are come up, they should be each trans-

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planted into a separate Pot, and plunged into a moderate Hot-bed to bring them forward. When the Plants have obtain'd a good Share of Strength, they should be inured to bear the open Air by degrees; into which they may be remov'd toward the Latter-end of *June*, placing them in a warm Situation, where they may remain till Autumn, when they should be remov'd into the Stove, and in Winter must have a moderate Degree of Warmth, otherwise they will not live in this Country.

These Plants will grow woody, and shoot out many Side-branches, but seldom rise above two Feet high. They will produce Flowers and Seeds every Summer, and will continue several Years, remaining constantly green throughout the Year.

PETROSELINUM. *Vide* Apium.

PEUCEDANUM, Hogs-fenel.

The Characters are;

It is a Plant with a Rose and umbellated Flower, consisting of many Petals placed orbicularly, and resting on the Empalement, which becomes a Fruit composed of two Seeds, which are almost plain, oval, gently streaked, and border'd: to these Marks must be added, That the Leaves are winged, narrow, grassy, and divided into three Segments.

The Species are;

1. PEUCEDANUM *majus Italicum*.
C. B. P. Greater Hogs-fenel.

2. PEUCEDANUM *minus Germanicum*. J. B. Lesser German Hogs-fenel, or Sulphurwort.

There are several other Species of this Plant, which are preserv'd in some curious Botanic Gardens; but as they are Plants of little Beauty or Use, it would be needless to enumerate their several Varieties in this Place.

The first Sort here mention'd is not very common in *England*, being

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only to be found in some curious Gardens: but the second Sort (which is directed to be used in Medicine) is found wild in watry Places, in several Parts of *England*.

These Plants may be cultivated by sowing their Seeds on a moist Soil in the Autumn, soon after they are ripe, in which Place the Plants will come up strong the succeeding Spring, when they should be carefully weeded, and drawn out, where they are too close, otherwise they will draw each other up very weak; and the Autumn following they may be taken up, and transplanted where they are to remain, in which Place they should be planted at least two Feet asunder; for their Roots will grow very large, and branch out greatly when they have acquired Strength. The second Year after sowing, they will produce Flowers and Seeds; but the Roots will abide many Years.

PHACA, Bastard Milk-vetch, or Astragaloides.

The Characters are;

The Empalement of the Flower is tubulous, and cut into five Parts at the Brim: the Flower is of the papilionaceous Kind, consisting of an oval Standard, two short Wings, and an obtuse short Keel: the Pointal afterward becomes a swelling Pod, with the upper Suture depress'd, having one Cell containing many kidney-shaped Seeds.

The Species are;

1. PHACA *leguminibus rectis*. Flor. Leyd. Bastard Milk-vetch with strait Pods.

2. PHACA *leguminibus arcuatis*. Flor. Leyd. Bastard Milk-vetch, with arched Pods.

This Plant being near of-kin to the Astragalus, or Milk-vetch, Dr. Tournefort gave it the Title of *Astragaloides*; but Dr. *Linnaeus* has alter'd it

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it to this of *Phaca* ; rejecting the other on account of its being a compound Name.

These Plants are Natives of *Portugal* and *Spain*, from whence the Seeds have been procured by some Persons who are curious in collecting rare Plants : the first Sort has been long preserv'd in some curious Gardens in *England* ; but the other is more rare at present.

The Roots of these Plants will abide many Years, and run very deep into the Ground ; but the Branches decay every Autumn, and the Roots produce fresh every Spring, which will rise near four Feet high, and grow ligneous. The Flowers are produced in short Spikes from the Wings of the Leaves : but, unless the Season proves very warm, they rarely flower in *England* ; for which Reason the Plants are not much esteem'd : for it is not once in seven Years, that the Flowers arrive to Perfection, nor do the Plants ever produce Seeds in *England* : so that the Seeds must be procur'd from abroad, by those who are desirous to have the Plants.

The Seeds should be sown in the Place where the Plants are to remain ; for as they shoot their Roots very deep into the Earth, so it is very difficult to transplant them with any Safety, especially after they have remain'd any considerable time in the Seed-bed. The Plants should be left about six Feet asunder, that there may be room to dig the Ground between them every Spring, which is all the Culture they require.

PHALANGIUM, Spiderwort.

The Characters are ;

It is a Plant with a Lily-flower, composed of six Petals, from whose Centre rises the Pointal, which afterward becomes a roundish Fruit, di-

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vided into three Cells, and full of angular Seeds : to these Marks must be added, A fibrose Root, in order to distinguish it from the *Ornithogalum*.

The Species are ;

1. *PHALANGIUM parvo flore, ramosum*. C. B. P. Branch'd Spiderwort, with a small Flower.

2. *PHALANGIUM parvo flore, non ramosum*. C. B. P. Unbranch'd Spiderwort, with a small Flower.

3. *PHALANGIUM Africanum, floribus luteis parvis*. Raii Hist. African Spiderwort, with small yellow Flowers.

4. *PHALANGIUM acaulon, foliis subulatis, floribus in thyrso luteis*. Low African Spiderwort, with flat Onion-leaves, and yellow Flowers dispos'd in a loose Spike.

5. *PHALANGIUM Africanum, foliis cepaceis, floribus spicatis aureis*. Boerb. Ind. African Spiderwort, with Onion-leaves, and golden Flowers growing in Spikes, falsely call'd an Aloe.

6. *PHALANGIUM Æthiopicum ramosum, floribus albis, petalis reflexis*. Hort. Amst. Branchy Ethiopian Spiderwort, with white Flowers, whose Petals are turn'd backward.

The first and second Sorts are abiding Plants, which are propagated in curious Gardens, for the sake of their Flowers ; and though they are not very beautiful, yet, for their long Continuance in Flower, they deserve a Place in the open Borders of every curious Flower-garden.

These may be propagated either from Seeds, or by parting their Roots. The best time to sow the Seeds is in Autumn, soon after they are ripe, in the manner directed for bulbous-rooted Flowers, with which these Plants agree in their Culture, and the second Year after sowing will produce Flowers. The Season for parting their Roots is in

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September ; in doing which, you must observe to preserve a good Head to each Off-set, and not to divide them too small, which will cause them to flower weak the following Summer : they delight in a fresh light Earth, and an open Situation.

The third Sort is an annual Plant, which should be sown on a Bed of light Earth, in *March* ; and when the Plants are come up, they must be transplanted where they are to remain ; in which Place they must be kept clear from Weeds, which is all the Culture they require : they produce their Flowers in *July*, and their Seeds are perfected in *August*.

The fourth and fifth Sorts are preserv'd in Green-houses, with other succulent Plants, amongst which they make a pretty Variety, there being scarcely a Month in the Year when there are not some of the Spikes of Flowers of the fifth Sort in Beauty. This was formerly call'd an Aloe, which Name is still retain'd by unskilful Persons, though it is vastly different therefrom in its whole Appearance. This Plant multiplies very fast by Off-sets, which, tho' produc'd at some Distance from the Earth, yet emit Roots of a considerable Length ; and, when planted, immediately fasten in the Earth : they should be planted in Pots of light sandy Earth, and housed in Winter, with Ficoides's, and other hardy succulent Plants, where they may have free open Air ; for they are hardy, and require only to be protected from Frost. The fourth Sort grows very low, the Leaves resting upon the Surface of the Ground : this flowers in *April* and *May*, and perfects its Seeds every Year ; where-by it may be propagated in plenty.

The sixth Sort is also preserv'd in some curious Gardens, with other

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Exotic Plants, in the Green-house : this is multiplied by parting the Roots : the best Season for doing this is in *August*, when most of the Leaves are decay'd : they should be planted in Pots fill'd with light sandy Earth, and housed in Winter with the last : this produces large-branching Stems, which are thinly beset with Flowers, that have their Petals reflex'd, and are of a whitish Colour ; but continue a long time in Beauty.

PHASEOLOIDES. *Vide* Glycine.
PHASEOLUS, Kidney-bean.

The Characters are ;

It is a Plant with a papilionaceous Flower, out of whose Empalement rises the Pointal, which after-ward becomes a long Pod, pregnant with Seeds, for the most part shaped like a Kidney, or oval : to these Notes are to be added, Leaves growing by Threes on each Pedicle, and the Plant for the most part climbing.

It would be to little Purpose to enumerate all the Varieties of this Plant which have come to Knowledge, in this Place ; since *America* annually furnishes us with new Sorts, so that there is no knowing what Varieties there may be produc'd in *England* : besides, as they are not likely to be much cultivated here, since the old Sorts are preferable to any of the new ones, for the Kitchen ; therefore I shall only first set down a few Sorts which are cultivated for their Flowers, or as Curiosities, and then mention those which are most esteem'd for the Table.

1. PHASEOLUS *Indicus, flore cocineo, seu puniceo. Mor. Hist.* The Scarlet Bean.

2. PHASEOLUS *Americanus perennis, flore cochleato odorato, seminibus fuscis orbiculatis, Caracalla dictus. H. L.* Perennial American Kidney-bean, with sweet-smelling cochleated Flowers,

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Flowers, commonly call'd Caracalla.

3. *PHASEOLUS Americanus, strumosa radice, flore purpureo, siliqua angustissima. Plum. American Kidney-bean*, with a strumose Root, a purple Flower, and a very narrow Pod.

4. *PHASEOLUS Canadensis purpureus minor, radice vivaci. Schol. Bot.* Small purple Kidney-bean, with a perennial Root.

The first of these Plants is very common in the *English* Gardens, being planted for the Beauty of its scarlet Flowers: this Plant spreads itself very far, so that it should be allow'd room, otherwise it will overrun whatever Plants grow near it, The Season for planting the Seeds of this Plant is in the Beginning of *May*, observing always to do it in dry Weather, otherwise the Seeds will burst and rot: they will produce their Flowers by the Beginning of *July*, and will continue flowering until the Frost prevents them; and their Seeds will ripen in *September*, when they should be gathered, and preserved in a dry Place until the succeeding Spring, in order to be sown. This Plant, being annual, perishes with the first Approach of Winter: it will thrive very well in the City, the Smoke of the Sea-coal being less injurious to this Plant than most others; so that it is often cultivated in Balconies, &c. and, being supported either with Sticks or Strings, grows up to a good Height, and produces Flowers as it advances: it is also planted in some Gardens, to cover Arbours, and other Seats, in the Summer-season, to afford Shade; for which Purpose it will do very well: but the Seeds must be planted where they are to remain; for the Plants don't bear to be transplanted; especially after they have been any time out of the Ground.

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The second Sort is an abiding Plant, which may also be propagated by Seeds, which should be sown in a moderate Hot-bed in the Spring; and when the Plants come up, they must be carefully transplanted into Pots fill'd with fresh light Earth, and must be plunged into an Hot-bed, to facilitate their taking Root; after which, they should be inured to bear the open Air by degrees, into which they should be remov'd when the Season is warm, placing them in a shelter'd Situation; and as they advance, they should be remov'd into larger Pots, which must be fill'd up with fresh light Earth.

During the Summer-season the Plants must be frequently refresh'd with Water; but in Winter they must be remov'd into the Greenhouse, and should have but little Water during that Season. These require only to be screen'd from Frost; but must have open free Air whenever the Weather will permit, otherwise the Leaves will grow mouldy, and decay the tender Shoots: these Plants produce their scarlet Flowers in *July* and *August*, but seldom perfect their Seeds in this Country. This Plant is very common in *Portugal*, where it is planted to cover Arbours and Seats in Gardens, for which it is greatly esteem'd by the Inhabitants of that Country, as also for its beautiful sweet-smelling Flowers; and in that Country it thrives very well in the open Air.

The third Sort is preserv'd in some curious Gardens for Variety; but is a Plant of no great Beauty: this may be propagated by sowing the Seeds in the Spring upon an Hot-bed; and when they come up, they must be planted in Pots, and treated as the former Sort: it produces its Flowers in *July*, and the Seeds ripen in *September*.

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The fourth Sort was brought from *America*, and is preserv'd in curious Gardens, for the sake of its long Flowering : this is an abiding Plant, and should be managed as was directed for the third Sort ; and if guarded from Frost, will continue to produce Flowers all the Winter-season : it ripens Seeds very well, from which the Plants may be easily propagated.

There are at present but few Sorts of Kidney-beans, which are cultivated for the Table in *England* : these are,

1. The Common White or *Dutch* Kidney-bean.
2. The Lesser Garden Kidney-bean, commonly call'd, The *Battersea* Bean.
3. The Upright or Tree Kidney-bean.
4. The Dwarf White Kidney-bean. This Sort is generally us'd for Hot-beds.
5. The *Canterbury* Kidney-bean.
6. The Spotted Tree Kidney-bean.

The first of these was formerly more cultivated in *England* than at present ; but is the chief Sort now cultivated in *Holland*, from whence, probably, it had the Name of *Dutch* Kidney-bean : this Sort rises to a very great Height, and requires to be supported by tall Stakes, otherwise they will spread upon the Ground, and rot ; so that where this Care is wanting, the Fruit seldom comes to good : which Trouble renders it difficult to cultivate this Sort in Plenty ; and the Beans being much broader than the small Sort, render them less valuable in the *London* Markets ; which, I suppose, occasion'd their being neglected in *England* : but this is by far the best Sort for Eating yet known.

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The second and fourth Sorts are most commonly cultivated in the Gardens near *London*, and the best Sorts we yet know to supply the Markets : for the Plants never ramble too far, but are always of moderate Growth, so that the Air can easily pass between the Rows, and keep them from rotting : they are also plentiful Bearers, and the best Beans, except the first, for Eating.

The third Sort is also a plentiful Bearer, and never rambles, growing upright in form of a Shrub : but the Beans are much larger than the last, and are not so well colour'd, nor do they eat near so firm and crisp ; for which Reasons they are not so generally esteem'd.

The fifth Sort hath been esteem'd by some Persons, for its continuing long in Bearing ; but the first is much preferable to it on that Account.

The sixth Sort is a plentiful Bearer, and stands upright, for which it is much esteem'd by some Gardeners ; but is a very bad-tasted Bean, being extremely rank, and rarely boils green.

These Sorts are propagated from Seeds, which must be sown in the Place where they are to remain ; for they will not bear transplanting, except it be done while they are very young ; and this, being pretty troublesome, is very seldom practis'd, unless for a few early Plants under warm Hedges or Walls ; but it is not worth while for the general Crops.

The Season for putting these Seeds in the Ground is the Middle of *April*, for an early Crop : but these should have a warm Situation, and a dry Soil, otherwise they will not succeed : you should also observe to put them into the Ground at a dry Season ; for Wet so early in the Season will rot the

the Seeds in the Ground. The Manner of planting them is, to draw shallow Furrows with an Hoe, at about two Feet and an half Distance from each other, into which you should drop the Seeds about two Inches asunder ; then with the Head of a Rake draw the Earth over them, so as to cover them about an Inch deep.

If the Season be favourable, the Plants will begin to appear in about a Week's time after sowing, and soon after will raise their Heads upright ; therefore, when the Stems are advanced pretty tall above-ground, you should gently draw a little Earth up to them, observing to do it when the Ground is dry, which will preserve them from being injur'd by sharp Winds: but you should be careful not to draw any of the Earth over their Leaves, which would rot them, or at least greatly retard their Growth. After this, they will require no farther Care but to keep them clear from Weeds, until they produce Fruit, when they should be carefully gather'd two or three times a Week ; for if they are permitted to remain upon the Plants a little too long, the Beans will be too large for eating, and the Plants would be greatly weaken'd thereby.

The *Dutch* Kidney-bean must be planted at a greater Distance, Row from Row ; for as these grow very tall, so if the Rows are not at a farther Distance, the Sun and Air will be excluded from the middle Rows ; therefore these should not be less than four Feet Distance Row from Row : and when the Plants are about four Inches high, the Poles should be thrust into the Ground by the Side of the Plants, to which they will fasten themselves, and climb to the Height of eight or ten

Feet, and bear Plenty of Fruit from the Ground upward. This Sort will continue good much longer than either of the other ; for the Pods of this Sort are never stringy, nor are the Beans mealy when old. The *Dutch* and *French* preserve great Quantities of the dry Beans for Winter-use, which they stew, and make good with Gravy, and other Sawces.

If two Crops of this Sort of Bean are sown at a proper Distance, it will be sufficient to continue a Succession during the Season of Kidney-beans, especially if a few of an early Kind are sown, to come before them : for this large Sort should not be sown earlier than the Latter-end of *April*, or the Beginning of *May*, according as the Season may prove.

The first Crop of *Battersea* Kidney-beans will continue a Month in good Order, during which time they will produce great Plenty of Beans ; therefore, in order to have a Succession of them throughout the Season, you should sow at three different times ; viz. in *April*, in *May*, and toward the Latter-end of *June* ; which last Crop will continue until the Frost comes on, and destroys them.

There are some Persons who raise these in Hot-beds, in order to have them early. The only Care to be taken in the Management of these Plants, when thus rais'd, is to allow them room, and give them as much Air as can be conveniently, when the Weather is mild ; as also to let them have but a moderate Heat ; for if the Bed be over-hot, they will either burn, or be drawn up so weak as never to come to good.

The Manner of making the Hot-bed being the same as for Cucumbers, &c. need not be repeated in

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this Place: but only observe, when the Dung is equally levell'd, to lay the Earth about four or five Inches thick; and let the great Steam of the Bed pass off before you sow the Seeds.

The time for doing this must be proportion'd to the Season when you would have the Beans for the Table; but the surest time for a Crop is about a Week in February.

It is also a good Method which some use, to have French Beans earlier than they can be obtain'd in the common Ground, to make a gentle Hot-bed about the middle of March, which may be arch'd over with Hoops, and cover'd with Mats; in this they sow their Kidney-beans in Rows pretty close together, so that a small Bed will contain a great Number of Plants: these they bring up hardily, inuring them to the open Air by degrees; and in the Middle of April, when the Weather is settled, they prepare some warm Borders under Walls or Hedges; then they take them up from the Hot-bed, preserving as much Earth as possible to their Roots, and plant them in the Borders at the Distance they are to remain: these, if they take Root kindly, will produce Beans at least a Fortnight or three Weeks before those sown in the common Ground.

The Manner of saving the Seeds of these Plants is to let a few Rows of them remain ungather'd in the Height of the Season; for if you gather from the Plants for some time, and afterwards leave the remaining for Seed, their Pods will not be near so long and handsome, nor will the Seed be so good. In the Autumn, when you find they are ripe, you should in a dry Season pull up the Plants, and spread them abroad to dry; after which, you

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may thresh out the Seed, and preserve it in a dry Place for Use.

PHILLYREA, Mock-privet.

The Characters are;

The Leaves grow by Pairs opposite to each other, and are ever-green: the Flower consists of one Leaf, is bell-shaped, and divided into four Parts at the Top: the Pointal, which rises from the Centre of the Flower-cup, afterward becomes a spherical Fruit containing one round Seed.

The Species are;

1. PHILLYREA *latifolia laevis*. C. B. P. The broad-leav'd true Phillyrea.

2. PHILLYREA *latifolia spinosa*. C. B. P. Ilex-leav'd Phillyrea, vulgo.

3. PHILLYREA *folio alaterni*. J. B. Phillyrea with an Alaternus-leaf.

4. PHILLYREA *folio ligustri*. C. B. P. Privet-leav'd Phillyrea.

5. PHILLYREA *angustifolia prima*. C. B. P. Narrow-leav'd Phillyrea.

6. PHILLYREA *angustifolia secunda*. C. B. P. Rosemary-leav'd Phillyrea, vulgo.

7. PHILLYREA *oleæ Ephesiææ folio*. Hort. Cbels. Pluk. Phyt. Olive-leav'd Phillyrea.

8. PHILLYREA *latifolia laevis, foliis ex luteo variegatis*. Cat. Plant. Hort. The true Phillyrea, with strip'd Leaves.

9. PHILLYREA *longiore folio profunde crenato*. H. R. Par. Phillyrea with a longer Leaf, which is deeply crenated.

10. PHILLYREA *folio buxi*. H. R. Par. Box-leav'd Phillyrea.

11. PHILLYREA *Hispanica, lauri folio serrato & aculeato*. Inst. R. H. Spanish Phillyrea, with a prickly and saw'd Bay-leaf.

12. PHILLYREA *Hispanica, nerii folio*. Inst. R. H. Spanish Phillyrea, with an Oleander-leaf.

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13. PHILLYREA *Capensis, folio telastri.* Hort. Elth. Phillyrea of the Cape of Good Hope, with a Staff-tree-leaf, commonly call'd by the Dutch, Lippelbout.

14. PHILLYREA *Americana humilis, radice crassa lutea, foliis acuminatis.* Plum. Cat. Dwarf American Phillyrea, with a thick yellow Root, and pointed Leaves.

15. PHILLYREA *Americana humilis, radice crassa rosea, foliis rotundioribus.* Plum. Cat. Dwarf American Phillyrea, with a thick rose-colour'd Root, and rounder Leaves.

The twelve first-mention'd Sorts are all of them Natives of the Southern Parts of *France, Spain* and *Italy*; but are hardy enough to endure the Cold of our Climate in the open Air: they have been formerly in great Request for Hedges, and to cover Walls: for both which Purposes they are very improper; because they shoot so fast in the Spring and Summer Months, that is very troublesome to keep such Hedges in Order: besides, all these Sorts with broad Leaves naturally produce their Branches so far asunder, that they can never be reduc'd to a thick handsome Hedge; for although by frequently clipping the extreme Parts of the Shoots you force out some Side-branches, which render it thick on the Outside, yet the inner Branches are very far asunder, and, being of a pliable Nature, are often displac'd by strong Winds; or if there happen to fall much Snow in Winter, so as to lie upon these Hedges, it often displaces them so much as not to be recover'd again in some Years; for which Reasons they are not so much in Use for Hedges as they were some Years past; nor are they so often planted to cover Walls; for it is a very difficult Task to keep them close to the

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Wall; for their Branches, being vigorous, commonly grow to some Distance from the Wall, and harbour all Sorts of Insects and Filth: besides, their Leaves being large, and growing pretty far asunder upon the Branches, they appear naked, especially when they are closely clipt.

But all these Sorts of Trees are very proper to intermix with other Ever-greens, to form Clumps, Amphitheatres, or to plant round the Sides of Wilderesses of ever-green Trees, where, being placed among other Trees of the same Growth, they will afford a pleasing Variety.

The three first Sorts will grow to the Height of twenty Feet, or more, and may be train'd up to regular Heads: but the narrow-leav'd Sorts seldom rise above fourteen or sixteen Feet high with us; so that they will be of a proper Size to place in a Line before the broad-leav'd Sorts, where being intermix'd with Hollies, Alaternus's, Arbutus's, and some other Sorts, they will make a beautiful Prospect.

The olive-leav'd Sort will also grow to the Height of twelve or fourteen Feet, and the Branches are well furnish'd with Leaves; so that it makes an exceeding good Figure, when intermix'd with other ever-green Trees: for the Leaves of this Sort are of a beautiful shining Green, and the Shoots grow erect; and, being strong, are not so liable to be displac'd as those of some of the other Kinds. The Sort with prickly Leaves grows much in the same manner; so that these are to be prefer'd to all the other Kinds on this Account.

The box-leav'd Sort is very scarce in *England*. This is of humbler Growth than either of the former, seldom rising above seven or eight Feet

Feet high: the Branches of this Sort grow pretty close, and the Leaves are very small.

As all these Sorts are very hardy, so they are the more valuable, being rarely injured by the Frost: whereas the *Alaternus* is frequently damag'd by severe Cold, and many times the Branches are kill'd to the Stem, when the *Phillyrea's* remain in Ver-dure: and by confounding the two Sorts together, as is commonly done by the Gardeners, they have both been brought into Disrepute unjustly: for I think all the Sorts of *Phillyrea* may be so placed in Plantations of ever-green Trees, as to be rendered very ornamental: therefore all the Sorts deserve propagating much better than many other which are more cultivated.

These Plants are propagated either from Seeds or Layers; but the latter, being the most expeditious Method in *England*, is chiefly preferr'd. The best time to lay them down is in Autumn, when you should dig the Ground round the Plants intended to lay, making it very loose; then making choice of a smooth Part of the Shoot, you should make a Slit upward (in the manner which is practis'd in laying of Carnations); and then bend the Branch gently down to the Ground, making an hollow Place with your Hand to receive it; and having plac'd the Part which was slit in the Ground, so as that the Slit may be open, you should fasten it down with a forked Stick, that it may remain steady, covering that Part of the Branch with Earth about three Inches thick, observing to keep the upper Part erect. In dry Weather these Layers should be water'd, which will greatly facilitate their Rooting; you must also keep them clear from Weeds, which, if suffer'd to grow up

amongst them, will prevent their taking Root.

The Autumn following, many of these Plants will be rooted; at which time they may be taken off, and carefully planted in a Nursery, where they may be train'd up three or four Years in the manner you intend them to grow; during which time you should dig the Ground between the Rows, and cut about the Roots of the Plants every Year; which will cause them to strike out strong Fibres, so as to support a good Ball of Earth when they are remov'd: you should also support their Stems with Stakes, in order to make them strait, otherwise they are very apt to grow crooked and unfightly.

When the Plants have been thus manag'd three or four Years, you may transplant them into the Places where they are design'd to remain. The best time for this Work is the Latter-end of *September*, or the Beginning of *October*: but in removing them, you should dig round their Roots, and cut off all downright or strong Roots, which have shot out to a great Distance, that you may the better preserve a Ball of Earth to each Plant, otherwise they are subject to miscarry: and when you have plac'd them in their new Quarters, you should lay some Mulch upon the Surface of the Ground, to prevent its drying; and give them some Water twice a Week in very dry Weather, but not too often; and this only when the Season is favourable; nor in too great Quantities, which will rot the new Fibres, and prevent their Growth. You should also support the Plants with Stakes until they have taken fast Hold of the Earth, to prevent their being turn'd out of the Ground, or displac'd by the Winds, which will destroy

destroy the Fibres that were newly put out, and greatly injure the Plants. These Trees delight in a middling Soil, which is neither too wet and stiff, nor too dry; tho' the latter is to be preferr'd to the former, provided it be fresh.

The Sort with strip'd Leaves is at present pretty rare, and somewhat tenderer than the others, as are most Sorts of variegated Plants less capable to endure the Cold, than those of the same Kinds which are plain; the Striping of Plants always proceeding from their Weakness. This is preserv'd in some Gardens as a Curiosity; but may be propagated in the same manner with the former.

Those Sorts with small Leaves are commonly two Years before they take Root, when laid: therefore they should not be disturb'd; for the raising them out of the Ground greatly retards their Rooting.

The thirteenth Sort is very common in several Gardens in *Holland*; but at present pretty rare in *England*. This Sort will not live abroad thro' the Winter in this Climate; therefore it is always preserv'd in Pots or Tubs, and remov'd into the Green-house in Winter, where if it is treated after the manner directed for the *Clusia*, it will thrive very well. This Sort is also propagated by laying down the tender Branches in the Spring of the Year, which must be duly water'd in dry Weather; and by the following Spring they will have taken Root; when they should be separated from the old Plant, and planted in Pots fill'd with fresh Earth, and plac'd in the Shade until they have taken new Root; after which time they may be expos'd, during the Summer-season, with other pretty hardy Exotic Plants, in a shelter'd Situation,

where they may remain until Autumn, when they must be remov'd into the Green-house. These Plants are ever-green, so that they make a pretty Variety in the Green-house, during the Winter-season.

The fourteenth Sort grows plentifully in several Parts of the *Spanish West-Indies*. The Seeds of this Kind were sent to *England* by Mr. Robert Millar, who gathered them near *Carthagena* in *America*. The fifteenth Sort was discover'd by Father Plumier in *America*, and since by Mr. Millar in the Island of *Tobago*, from whence he sent some Seeds; but they did not succeed in *England*.

These two Sorts are tender Plants, which must be kept in a warm Stove in Winter, otherwise they will not live in this Country.

They may be propagated by Seeds, which should be obtain'd as fresh as possible from the Countries of their Growth, and must be sown in Pots of fresh light Earth, and plunged into an Hot-bed of Tanners Bark; where they should remain until the Plants come up, which is many times a Year from the time of sowing: therefore whenever the Seeds remain so long in the Ground, the Pots must be frequently water'd in Summer, and in Winter the Glasses of the Hot-bed should be cover'd with Mats, when the Weather is cold, to prevent the Frost from entering the Bed, which would destroy the Seeds.

When the Plants are come up, they should be each transplanted into a small Pot fill'd with fresh Earth, and then plunged into the Hot-bed again, observing to shade them from the Sun in the Heat of the Day, until they have taken new Root; after which time they must have free Air admitted to them every Day,

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Day, in proportion to the Warmth of the Season. In this Bed the Plants may remain till Autumn, when they should be remov'd into the Stove, and plung'd into the Bark-bed, where, during the Winter - season, they should be kept pretty warm. These Plants may remain in the Bark-stove for two Years or less, according as they acquire Strength; for when they are pretty strong, they may be treated less tenderly, exposing them in the Middle of the Summer to the open Air, in a shelter'd Situation: and in Winter they may be plac'd in a dry Stove, where they should have a moderate Degree of Warmth, in which they will thrive very well. These Plants retain their Verdure throughout the Year, for which they are chiefly esteem'd.

PHLOMIS, The Sage-tree, or Jerusalem Sage.

The Characters are;

It hath a labiated Flower consisting of one Leaf, whose upper Lip, or Helmet, which is crested, does wholly rest upon the under Lip, or Beard, which is divided into three Parts, and extends a little beyond the upper Lip: the Pointal rises out of the Flower-cup accompany'd with four Embryoes, which afterward become so many oblong Seeds, shut up in an Husk, or pentagonal Tube, which was before the Flower-cup.

The Species are;

1. PHLOMIS *fruticosa, salviæ folio latiore & rotundiore*. Tourn. Broad-leav'd Sage-tree, vulgo.

2. PHLOMIS *fruticosa, salviæ folio longiore & angustiore*. Tourn. Narrow-leav'd Sage-tree, vulgo.

3. PHLOMIS *fruticosa humilis latifolia candidissima, floribus luteis*. Aët. Phil. Low shrubby Sage-tree, with broad hoary Leaves, and yellow Flowers.

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4. PHLOMIS *Narbonensis, bormini folio, flore purpurascente*. Tourn. Narbonne Jerusalem Sage, with a Clary-leaf, and purplish Flower.

5. PHLOMIS *Hispanica candidissima herbacea*. Tourn. Spanish Jerusalem Sage, with very hoary Leaves.

6. PHLOMIS *lychnitis*. Clus. Hist. Narrow-leav'd Jerusalem Sage.

7. PHLOMIS *Samia herbacea, lunariæ folio*. T. Cor. Herbaceous Samian Jerusalem Sage, with a Moonwort-leaf.

8. PHLOMIS *Orientalis, foliis laciniatis*. T. Cor. Eastern Jerusalem Sage, with jagged Leaves.

9. PHLOMIS *Orientalis lutea herbacea latifolia verticillata*. Aët. Phil. Broad-leav'd herbaceous Jerusalem Sage from the Levant, with yellow Flowers growing in Whorles.

10. PHLOMIS *fruticosa, flore purpureo, foliis rotundioribus*. Inst. R. H. Shrubby Jerusalem Sage, with a purple Flower, and rounder Leaves.

11. PHLOMIS *fruticosa Lusitanica, flore purpurascente, foliis acutioribus*. Inst. R. H. Shrubby Jerusalem Sage of Portugal, with a purplish Flower, and sharp-pointed Leaves.

12. PHLOMIS *Hispanica fruticosa candidissima, flore ferrugineo*. Inst. R. H. The whitest Spanish Shrub Jerusalem Sage, with an iron-colour'd Flower.

13. PHLOMIS *Orientalis lutea angustifolia, cymis fulvescentibus*. D. Sherard. Aët. Phil. N. 376. Yellow Eastern Jerusalem Sage, with a narrow Leaf, and yellow Tops.

The three first-mention'd Sorts grow to be Shrubs of a middling Size, and are proper to intermix with other Sorts of Plants, which are of the same Growth, in small Wilderness-quarters, where, by the Diversity of their hoary Leaves, their large

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large Spikes of yellow Flowers, and their long Continuance in Flower, they make an agreeable Variety.

These Plants have been preserv'd in Pots, and placed in the Green-house in Winter among other tender Exotics: but they are hardy enough to endure the Cold of our ordinary Winters in the open Air, provided they are planted in a dry Soil, and have a warm Situation; and are rarely injured by Cold, unless in a very severe Frost.

They are propagated by Cuttings in this Country; for their Seeds seldom ripen well in *England*, except in very warm dry Seasons. The best time to plant these Cuttings is in *May*, that they may have good Roots before Winter. They should be planted in a Bed of fresh light Earth, and shaded from the Sun until they have taken Root; after which, they will require no farther Care, but only to keep them clear from Weeds until the following Spring, when they may be remov'd to the Places where they are design'd to be continu'd.

The best Season for transplanting them is in *April*, before they begin to shoot, observing to preserve a Ball of Earth to the Root of each Plant, as also to water them until they have taken Root: and in order to form them into a regular Shape, they should be stak'd, and their Stems kept constantly fasten'd thereto, until they arrive at the Height you design them: then you may suffer their Branches to shoot out on every Side, to make an handsome Head; in order to which, you should prune off such Branches as grow irregular on either Side, which must always be perform'd in Summer; for if they are wounded in Winter, the Cold often injures the Plants, by entering the Wounds.

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The Soil in which they are plac'd should not be dung'd; for that causes them to grow too fast, whereby their Shoots are too replete with Moisture, and less capable to endure the Cold; whereas if they are planted upon a dry, barren, rocky Soil, they are seldom injur'd by Cold, which is the Case of most of the same Class of Plants with Lip-flowers.

The tenth, eleventh, twelfth, and thirteenth Sorts are shrubby Plants, which grow three or four Feet high; and are very proper to intermix with other Shrubs of the same Growth. These are sometimes injur'd by hard Frosts; but will endure the Cold of our ordinary Winters in the open Air, if they are planted in a warm Situation. These may be propagated by Cuttings in the same manner as hath been directed for the former Sorts.

The other Sorts, being low herbaceous Plants, are all of them propagated by parting of their Roots, which should be done in the Spring of the Year, observing to preserve a leading Bud to each Off-set. These should also be plac'd in a dry, rocky, or gravelly Soil, in which they will thrive much better than if planted in a richer Ground, and will endure the Cold of our ordinary Winters extremely well in the open Air.

These Plants last-mentioned are of no great Beauty; but are preserv'd in the Gardens of those who are fond of Variety. A Tea made with the Leaves of these Plants is accounted very good for sore Throats.

PHLOX, *Lychnidea* or Bastard *Lychnis*.

The Characters are;

The Empalement consists of one Leaf, is tubulous, and cut at the Brim into five acute Segments: the Flower is of one Leaf, shap'd like a Salver, having a long Tube, and is spread open

open at the Top, where it is divided into five equal blunt Segments: in the Bottom of the Flower is situated the Pointal, attended by five Stamina, which are short: the Pointal afterward becomes a conical Vessel, having three Cells, each containing one oval Seed.

The Species are;

1. PHLOX foliis lineari-lanceolatis, caule erecto, corymbo terminatrici. Lin. Flort. Cliff. Bastard Lychnis, with narrow spear-shap'd Leaves, and an upright Stalk terminated with a Corymbus of Flowers.

2. PHLOX foliis crassis lucidis acutis, caule erecto, floribus quasi umbellatim dispositis. Bastard Lychnis, with thick shining pointed Leaves, an upright Stalk, and Flowers dispos'd in an Umbel.

3. PHLOX foliis lanceolatis obtusis, floribus majoribus umbellatim dispositis. Bastard Lychnis, with blunt spear-shap'd Leaves, and large Flowers growing in an Umbel.

4. PHLOX foliis lineari-lanceolatis, caule elatior, floribus in longam spicam dense stipatis. Bastard Lychnis, with narrow spear-shap'd Leaves, a tall Stalk, and Flowers growing in a long close Spike.

These are all of them American Plants: some of them were brought from Virginia, and others from Carolina; but they thrive very well in the open Air in England: and as they are beautiful flowering Plants, they merit a Place in every good Garden.

The third Sort is the first which flowers in the Spring. This begins flowering in May: the Stalks are seldom more than a Foot high: the Leaves are much broader than those of the other Sorts: the Flowers are large, and of a sky-blue Colour.

The next which follows in flowering, is the first Sort. This grows

a little taller than the former: the Leaves are narrow, and sharp-pointed: the Flowers are of a pale-purple Colour, and grow in form of an Umbel.

The second Sort succeeds this in the time of Flowering. The Stalks of this are stronger and taller than either of the former: the Leaves are stiff, and of a shining-green Colour: the Flowers are of a bright-purple Colour, and are dispos'd almost in form of an Umbel, and continue in Flower much longer than either of the former. This flowers the Latter-end of June, and continues most Part of July in Beauty.

The fourth Sort grows upward of three Feet high, with strong spotted Stalks: the Leaves are stiff and pointed, growing by Pairs, which cross each other at the Joints alternately: the Flowers are dispos'd in a long thick Spike, forming a kind of Pyramid, and are of a bright-purple Colour: this begins to flower toward the End of July, and continues thro' August, and a great Part of September; especially if it is planted in a moist Soil, and not too much expos'd to the Sun; and is one of the most ornamental Plants of the Season.

These Plants are usually propagated by parting of their Roots: the best Season for this is in October. The first and third Sorts increase pretty fast this way; but the second and fourth Sorts do not propagate so much by Off-sets: therefore these may be propagated in plenty by Cuttings, which should be taken off, when the Shoots are about four or five Inches high, and planted in a shady Border, where, if they are duly water'd, they will make Roots in three Weeks or a Month's time, and most of them will flower the same Year, a little after the old Roots;

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so they may be continu'd longer in Flower by this Method: and these will be strong Plants fit to plant in the Borders of the Pleasure-garden in *October*.

All the Sorts may be propagated by Cuttings in the same manner as these; but as the two other Sorts increase pretty fast by Off-sets, so this Method of propagating those is rarely practis'd, unless where the Plants are not in plenty.

It is very rare that either of these produce Seeds in *England*; but in their native Country they seed pretty well every Year; and from the Seeds most of them were obtain'd in *Europe*.

They delight in rich Ground, and should be duly water'd in very dry Weather, otherwise their Stalks will be short, the Flowers small, and of short Duration: if some of each Sort of these Plants are planted in Pots, and constantly water'd, they will flower very strong, and make a fine Appearance; so will be very proper to adorn Court-yards or Halls, during their Continuance in Flower, where they will be very ornamental.

This Genus of Plants was titled *Lychnidea*, from the Resemblance which the Flowers have to some Species of *Lychnis*; but as this Name is compounded, Dr. *Linnaeus* has alter'd the Title to this of *Phlox*, which is a Name of *Theophrastus*, applied by him to some Plant which had great Affinity to the *Lychnis*.

PHYLICA, Alaternoides, or Bastard Alaternus.

The Characters are;

The Flowers are collected together in an Head, and sit upon a sort of Disk, each having an Empalement consisting of three narrow Leaves: the Flowers are tubulous, and extend beyond the Empalement, and are cut at the Brim into five Parts, where they

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are fringed; and the Bottom of the Tube is scaly: the Pointal is situated at the Bottom of the Tube, attended by five short Stamina, which are inserted in the Scales of the Tube: the Pointal afterward changes to a roundish Vessel, having three Cells, each having one Seed.

The Species are;

1. PHYLICA foliis ovato-linearibus. *Lin. Hort. Cliff.* Bastard Alaternus, with Heath-leaves.

2. PHYLICA foliis lineari-subulatis, summis hirsutis. *Flor. Leyd.* Bastard Alaternus, with Yew-leaves, which are crown'd with Hairs on their Top.

The first Sort is now pretty common in the *English* Gardens, where it is usually plac'd in the Greenhouse in Winter; but this will live in the open Air in moderate Winters, if it is planted on a dry Soil, and in a warm Situation: but as severe Frost will destroy them, some Plants should be preserv'd in Pots, and shelter'd in the Winter to preserve the Kind: and as these Plants continue in Flower from the Beginning of *October*, to the End of *March*, they merit a Place in the Greenhouse among other hardy Exotic Plants, where being intermix'd, they make an agreeable Variety; for the Extremity of each Branch is generally terminated by Bunches of small snowy Flowers; and the Shoots being closely garnish'd with ever-green Leaves, shap'd somewhat like those of Heath, have a very agreeable Appearance during the whole Winter-season.

This Sort is apt to produce its Branches irregular, and to spread near the Ground, unless they are train'd to Stakes while young; but they may, with Care, be train'd up with Stems: but their Shoots should not be shorten'd to reduce them to regular

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regular Heads; for that will prevent their Flowering, which is the Case of most of these Plants in the *Dutch* Gardens, where they are reduc'd to regular Heads: but the best Way is to spread the Branches, and form them into a sort of Fan, whereby their Branches may be extended to their full Length; and they may be train'd so close as to form a thick well-spread Fan, which will be cover'd with white Flowers from the Ground upward to the Height of three Feet.

The second Sort is now very rare in the *English* Gardens; but was some Years past more common: it grows about the same Height with the former Sort, and produces its Flowers in Winter: but these are not so beautiful as those of the other, nor are they of so long Duration; but as the Leaves continue green throughout the Year, it may merit a Place in every good Green-house.

These Plants were brought from the *Cape of Good Hope*, where they naturally grow, into the curious Gardens in *Holland*, where they are preserv'd with great Care; but we find them so hardy as to live abroad in moderate Winters, and only require to be screen'd from severe Frost; so they may be plac'd, in the Winter, in a common Green-house, together with Myrtles, Oleanders, and such other hardy Exotic Plants, as require no artificial Warmth, but only Protection from severe Frost.

They may both be propagated by Cuttings, which should be planted about the Middle or Latter-end of *August*, which is the time these Plants are preparing to shoot; for they keep their natural Season of Flowering and Growth, altho' they are remov'd to a Country differing in Seasons from that of their original Growth. The best Method is,

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to plant the Cuttings in Pots fill'd with rich Earth, and to plunge the Pots into an old Hot-bed of Tanners Bark, where the Heat is almost over, and to shade the Glasses in the Heat of the Day, to screen off the Sun, and keep the Cuttings duly moistened. With this Management I have seldom lost any of the Cuttings, whereas scarce any of those which have been planted much earlier in the Season have succeeded. The Cuttings may remain in the same Pots till the following Summer, when they should be carefully taken out, and each planted into separate Pots, that they may be hous'd in Winter until some of them have obtain'd Strength, when they may be planted in warm Borders, where they will live thro' the Winter, without Covering, if the Frost is not severe; but they should be two Years old from the Cutting, before they are planted out in the full Ground.

PHYLLANTHUS, Sea-side Laurel.

The Characters are;

It hath Male and Female Flowers in the same Plant: the Empalement of both Sexes is of one Leaf, bell-shaped, and cut at the Brim into six Parts: there are no Petals to the Flower; but the Male have each three short Stamina, joining at the Base, but are spread open at their Top: the Female Flowers have a roundish Pointal, which becomes a roundish Seed-vessel, having three Cells, which have a single Seed in each.

The Species are;

1. PHYLLANTHUS *foliis lanceolatis serratis, crenis floriferis.* Lin. Hort. Cliff. Phyllanthus with saw'd spear-shap'd Leaves, bearing Flowers on their Edges, call'd Sea-side Laurel.

2. PHYLLANTHUS *foliis alternis alternatim pinnatis, floribus dependentibus*

entibus ex alis foliolorum. Hort. Cliff.
Annual Phyllanthus, with small Leaves growing alternate, and the Flowers coming out from the Wings of the Leaves hanging down.

3. PHYLLANTHUS *caule arboreo, foliis lanceolatis acutis, fructu parvo sessili.* Shrubby Phyllanthus, with pointed spear-shap'd Leaves, and small Fruit growing close to the Leaves.

4. PHYLLANTHUS *caule arboreo, foliis latis subrotundis, fructu majore pendulo, petiolo longo.* Tree Phyllanthus, with broad roundish Leaves, and larger Fruit growing on long Footstalks.

5. PHYLLANTHUS *caule arboreo, foliis ovatis obtusis, subtus incanis, alternatim sitis, fructu maximo.* Tree Phyllanthus, with oval blunt Leaves, which are white on their Under-side, and a very large Fruit.

The first Sort is very common in the *West-Indies*, where it grows out of the Rocks on the Sea-shore, in most of the Islands; but is seldom found growing on the Land, nor is it easily transplanted; for the Fibres of the Roots insinuate themselves so deeply into the Crevices of the Rocks, that unless the Rock is broken, there is no Possibility of getting the Roots out: and it is as difficult to propagate by Seeds; for unless they are sown soon after they are ripe, they will not grow, and the greatest Part of the Seed proves abortive; so that this Sort is very rare in *Europe*. There was formerly a Plant of this Sort in the Gardens at *Hampton-Court*; but this, with many other fine Plants, has been destroy'd by the Ignorance of the Gardeners.

This Tree grows about fifteen or sixteen Feet high: the Leaves come out without any Order, which are five or six Inches long, smooth and thick: upon the Edges of the Leaves

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the Flowers are produc'd, but especially toward the Upper-part, where they are plac'd very closely, so as almost to form a sort of Border to the Leaves; which, together with the shining-green Colour of the Leaves, makes a very beautiful Appearance: the Leaves continue green all the Year, which renders the Plant more valuable.

There is no other Method of obtaining this Plant but to procure it from some of the Islands in *America*, where they grow in plenty. It is known in *Barbados* by the Name of Sea-side Laurel, which Name it is probable may have been given to it, from some Resemblance which the Inhabitants of those Islands suppos'd the Leaves to have of those of the common Laurel; but they are much narrower and longer, and have no other Resemblance but the Thickness, and shining-green Colour.

It requires to be plac'd in a moderate Stove in the Winter, otherwise it will not live in *England*: but in Summer it may be plac'd in the open Air, in a warm-shelter'd Situation. With this Management I have seen this Plant in great Vigour in the Physic-garden at *Amsterdam*.

The second Sort is an annual Plant, which grows with an erect Stalk near two Feet high, and branches out on every Side: the Leaves are pennated, having several small oval Leaves plac'd alternately along the Mid-rib: the Flowers are produc'd from the Wings of these little Leaves, the whole Length of the Mid-rib, on the Under-side, on very short Footstalks, which are of an herbaceous Colour, and hang downward: the whole Plant perishes in Winter, being an Annual; for altho' it has been plac'd in the warmest Stoves, yet it never has surviv'd a Winter. The Seeds of

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this Plant ripen gradually, according as the Flowers were produc'd; those nearest the Stem ripening first; and if they are not watch'd, to gather them as they ripen, they will soon drop, and be lost: but those Seeds which happen to scatter upon other Pots of Earth will come up the following Spring; so that from some Plants, which were plac'd in a Stove, the Seeds were cast over most of the Pots of Plants then in the Stove, and the Plants came up like Weeds: it was by this Accident the Plant was first brought to *England*; for the Seeds had been scatter'd in some Tubs of Earth which came from *Barbados*, in which the Plants came up in great Plenty; and having the Advantage of a Stove, the Seeds ripen'd perfectly, and were maintain'd by the scatter'd Seed: it is too tender to live in the open Air of *England*; so should be rais'd on an Hot-bed in the Spring, and afterward plac'd in the Bark-stove, where the Plants will perfect their Seeds annually, and in Autumn decay.

The third Sort was discover'd by the late Dr. *William Houstoun* at *La Vera Cruz*, who sent the Seeds to *Europe*. This hath a woody Stem, which rises to the Height of eight or ten Feet, and divides into several Branches, which are garnish'd with pennated Leaves, compos'd of several small pointed Leaves, plac'd alternately along the Mid-rib: the Flowers are produc'd as those of the former, on the Under-side of the Leaves, hanging downward, and grow close to the Mid-rib: the Leaves of this Sort decay in Autumn, and fresh ones come out in Spring. This is full as tender as the former Sort; so will not live in *England*, unless it is preserv'd in Stoves.

The fourth and fifth Sorts were discover'd by the same Gentleman, who sent the Seeds and dried Sam-

ples of both to *England*. These grow twelve or fourteen Feet high, having strong woody Stems, which branch out wide on every Side: the Branches of the fourth Sort are garnish'd with broad roundish Leaves, which grow alternately along the Mid-rib: the Fruit grows on long Footstalks plac'd on the Under-side of the Leaves hanging down: the Fruit of this Sort is about the Size of an Hazel-nut, swelling out in three Divisions, like the Seed-vessel of the Spurge: the Covering is ligneous, and of a brown Colour when ripe.

The fifth Sort has very broad Leaves, whose Surface is rough; and the Under-side of a whitish-grey Colour. These are placed alternately upon the Branches. The Fruit of this Sort is as large as a Walnut, of a dark-brown Colour when ripe: the Cover is woody, and swells out in three Divisions, in each of which should be lodg'd a single Seed; but it rarely happens that more than one of them comes to Maturity: nor in many of them is there one good Seed, tho' they appear large and fair; yet, upon Examination, scarce one in forty, of either the fourth or fifth Sorts, had any Germ, but were hollow.

These are also very tender Plants; so must be placed in a warm Stove, otherwise they cannot be preserv'd in *England*. All these four last-mention'd Sorts are easily propagated from good Seeds, which must be sown on an Hot-bed in the Spring; and afterward planted in Pots, and placed in the Bark-stove, treating them in the same manner as hath been directed for other Exotic Plants from the same Country.

These Plants many of them grow in the *East-Indies*, where there are several other Species of this Genus, some of which are well figur'd and describ'd in the *Hortus Malabaricus*, under

under the Title of *Nirouri*; which Name has been applied by some Botanists to the Genus, under which the four last Species have been ranged; but that, being a barbarous Name, is rejected by Dr. *Linnaeus*, who has remov'd these to the first Sort, and taken that Title to the Genus; and as they pretty well agree in their Characters with the first Species, so I think it better to join them, than to divide them into two Genera, especially as there have been Doubts where to fix them; for, by some, these Species of *Nirouri* were joined to *Tournefort's* Genus of *Telephioides*; but I think their Characters correspond much better with those of the *Phyllanthus*.

PHYLLIS, *Simpla Nobla dicta*.

The Characters are;

The Empalement of the Flower is very small, and composed of two Leaves: the Flower hath five obtuse Petals, which seem joined at their Base: in the Bottom of the Flower is situated the Pointal, attended by five short slender Stamina: the Pointal afterward becomes an oblong turbinate Fruit, composed of two Seeds which join together, where they are plain, and are convex on the other Side: to which may be added, The Flowers growing in an Umbel.

I have not observ'd more than one Species of this Genus in the English Gardens; which is,

PHYLLIS *stipulis dentatis*. Flor. Leyd. *Simpla Nobla*.

There is another Species mention'd by Dr. *Van Royen*, in the *Flora Leydensis*, which he titles *Phyllis stipulis integerrimis*: but this Difference I have not observ'd in any of the Plants, which are growing in our Gardens.

This Plant was brought from the Canary Islands, and has been long an Inhabitant of many curious Gardens in England, and was known for

many Years by the Name of *Simpla Nobla*: and having had no English Name applied to it, I have continu'd that Title for want of an English one: nor could the Botanists agree under what Genus to range this Plant: Dr. *Boerhaave* was the first who establish'd a Genus for it under the Title of *Bupleuroides*, as this Plant hath some Affinity to the *Bupleurum*: but others have plac'd it under that of *Valerianella*, as supposing its Characters agreed better with those of that Genus: but Dr. *Linnaeus* has rejected both those Titles, and applied this of *Phyllis* to this Plant, on the Account of the Beauty of its Leaves; for the Flowers have no more Beauty than those of Hemlock, or other umbelliferous Plants.

This rarely grows above two Feet high, having a soft woody Stem, which branches out very low on every Side: these Branches will extend pretty wide, so as to form a spreading Shrub: the Leaves are large, and deeply vein'd, and remain green thro' the Year, in which the greatest Beauty of the Plant consists: the Flowers are produc'd in Umbels at the Extremity of the Branches, which are of a yellowish-green Colour, and are succeeded by Seeds growing in a loose Umbel.

It is propagated by Seeds which must be sown on a Bed of fresh light Earth in March; and when the Plants are fit to transplant, they should be put into separate Pots, and placed in a shady Situation until they have taken Root; after which time they should be placed in a Situation where they may have the morning Sun; and in Summer will require to have plenty of Water. In Winter they must be sheltered from the Frost; but require to have as much free Air as possible, in mild Weather; and if in the Spring some of the Plants are shaken out of the Pots,

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and put into the full Ground, they will perfect their Seeds much better than those which remain in the Pots.

As these Plants seldom continue in Health above four or five Years, it will be proper to raise a Supply of young ones to succeed them.

PHYTOLACCA, *American* Nightshade.

The Characters are ;

The Flower consists of several Leaves, which are placed in a circular Order, and expand in form of a Rose ; out of whose Centre rises the Pointal, which afterward becomes a soft Fruit, or almost globular Berry full of Seeds, placed orbicularly : to which should be added, That the Flowers and Fruit are produced on a Bunch like Currans.

The Species are ;

1. **PHYTOLACCA Americana**, *majori fructu*. Tourn. *American* Nightshade, with large Fruit, commonly call'd *Virginian Poke*, or *Porke Phyfic*.

2. **PHYTOLACCA Mexicana**, *baccis sessilibus*. Hort. Elth. *Mexican* Phytolacca, whose Berries grow close to the Stalk.

The first of these Plants is very common in *Virginia*, *New-England*, and *Maryland*, where the Inhabitants take a Spoonful or two of the Juice of the Root, as a familiar Purge. The Berries thereof are full of a purple Juice, which gives a fine Tincture to Paper, from whence it hath the Name : this will not abide long, but fades in a short time : therefore, if there could be a Method found to fix this Colour, it might be of considerable Use ; for it is one of the most beautiful purple Dyes yet known.

It may be propagated by sowing Seeds in the Spring upon a Bed of light rich Earth ; and when the Plants come up, they should be transplanted into the Borders of large Gardens, allowing them Space

to grow ; for they must not be planted too near other Plants, lest they overbear and destroy them ; for they grow to be very large, especially if the Soil be good. When they have taken Root, they will require no farther Care but only to clear them from Weeds, and in Autumn they will produce their Flowers and Fruit : but when the Frost comes on, it will cut down the Stems of these Plants, which constantly decay in Winter ; but their Roots will abide in the Ground, and come up again the succeeding Spring. There is no great Beauty in this Plant ; but, for Variety, a few of them may be placed in the Borders of large Gardens, since they require but little Culture ; and as they grow very tall, they will make a Figure in the Borders of large Gardens, especially in the Autumn, when the Spikes of purple Fruit are ripe. I have seen Plants of this Kind upward of six Feet high, when they have been in good Ground. As these Plants seldom continue longer than three or four Years, young ones should be raised to succeed them.

The second Sort is a Native of the warmer Parts of *America* ; so will not live in the open Air in *England*. This has been lately introduc'd into some of the *British* Islands in *America*, from the *Spanish* *West-Indies*, where it grows spontaneously ; and the Inhabitants cut the green Herb, and boil it for Spinach, which they eat without any ill Effect, tho' it has been by some Persons thought to have the Quality of Nightshade.

The Seeds of this Sort should be sown upon an Hot-bed early in the Spring ; and when the Plants are fit to transplant, they should be put into Pots ; and after they have acquir'd Strength ; may be enured to bear the open Air, where they may remain

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remain till the Autumn, when they should be remov'd into Shelter; and if they are placed where they may have a moderate Share of Warmth, they will flower all the Winter, and ripen their Fruit in the Spring. Dr. *Linnaeus* supposes these two Species are the same, in which he is greatly mistaken.

PILOSELLA. *Vide Hieracium.*

PIMPINELLA. *Vide Sanguiforba and Poterium.*

PINASTER. *Vide Pinus Sylvestris.*

PINGUICULA, Butterwort.

This Plant is found growing upon Bogs in many Parts of England; but is never cultivated in Gardens; so I shall pass it over with barely mentioning it.

PINUS, The Pine-tree.

The Characters are;

It hath amentaceous Flowers, or Katkins, which are produced at remote Distances from the Fruit on the same Tree: the Seeds are produced in squamous Cones: to which should be added, That the Leaves are longer than those of the Fir-trees, and are produced by Two's or more out of each Sheath.

The Species are;

1. PINUS *sativa*. C. B. P. The manured Pine.

2. PINUS *sylvestris*. C. B. P. The Pinaster, or Wild Pine.

3. PINUS *sylvestris, foliis brevibus glaucis, conis parvis albentibus*. *Raii Hist.* The Scotch Pine, commonly call'd the Scotch Fir.

4. PINUS *Americana, foliis praelongis, subinde ternis, conis plurimis confertim nascentibus*. *Rand.* American Pine, with longer Leaves coming out by Threes, and many Cones growing in a Cluster; commonly called the Cluster Pine.

5. PINUS *Americana, ex uno folliculo, setis longis tenuibus triquetris, ad unum angulum, per totam longitudinem, minutissimis crenis asperatis.*

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Pluk. Amaltb. Lord *Weymouth's* Pine; or, by some, the *New-England* Pine.

6. PINUS *sylvestris montana tertia*. C. B. P. The third wild mountain Pine, of *Caspar Baubin*.

7. PINUS *sylvestris montana altera*. C. B. P. Another wild mountain Pine.

8. PINUS *sylvestris maritima, conis firmiter ramis adhaerentibus*. *J. B.* Wild maritime Pine, whose Cones adhere firmly to the Branches.

9. PINUS *maritima altera Matthioli*. C. B. P. Another maritime Pine of *Matthiolus*.

10. PINUS *maritima minor*. C. B. P. Lesser maritime Pine.

11. PINUS *humilis, iulis virescentibus aut pallescentibus*. *Inst. R. H.* Dwarf Pine, with a green or pale Katkin.

12. PINUS *humilis, iulo purpurascente*. *Inst. R. H.* Dwarf Pine, with a purplish Katkin.

13. PINUS *conis erectis*. *Inst. R. H.* Pine whose Cones grow erect.

14. PINUS *Orientalis, foliis durioribus amaris, fructu parvo peracuto*. *Tourn. Cor.* Eastern Pine, with harder bitter Leaves, and a small sharp-pointed Cone.

15. PINUS *Hierosolymitana, praelongis & tenuissimis viridibus setis*. *Pluk. Almag.* Eastern Pine, with long narrow green Leaves; commonly called the *Aleppo* Pine.

16. PINUS *Virginiana, praelongis foliis tenuioribus, cono echinato*. *Pluk. Almag.* Virginian Pine, with long narrower Leaves, and a rough Cone; commonly called *Bastard three-leav'd* Pine.

17. PINUS *Virginiana, ternis seu tripilis plerumque ex uno folliculo setis, strobilis majoribus*. *Pluk. Almag.* Virginian Pine, having, for the most part, three Leaves, coming out of one Sheath; commonly called the *Frankincense-tree*.

18. *PINUS Virginiana*, *binis brevioribus & crassioribus setis, minore cono, singulis squamarum capitibus aculeis donatis.* Pluk. Alm. *Virginian Pine*, with shorter thicker Leaves, and smaller Cones, with a Prickle on the Top of each Scale; commonly called the *Jersey Pine*.

19. *PINUS Americana palustris, longissimis & viridibus setis.* Marsh *American Pine*, with the longest green Leaves.

The first Sort is much cultivated in *Italy*, and the South of *France*, where the Trees grow to a large Size; and are the great Ornament of the *Italian Villa's*: this Sort is also in *Spain*, *Portugal*, and most of the warm Parts of *Europe*; where the Nuts which contain the Seeds are frequently served up to the Table, and are eaten in the same manner as the *Pistachia Nut*: and these were formerly used in Medicine in *England*; but of late Years they have been neglected, and *Pistachia Nuts* substituted in their Place.

The Cones of this Sort are very large, and the Scales are broad and flat: the Nuts or Seeds are as large as those of the *Hazel*, but are of an oval Figure: the Shell is very hard, and when fresh taken out of the Cone, is covered with a purple *Farina*, which will colour the Hands: each of the Cones, if well grown, will contain upward of fourscore Nuts: the Leaves of this Tree are long, and of a glaucous Colour: these are, for the most part, produced by Pairs out of each Sheath; tho' sometimes, in young Plants, I have observed three. If these Trees have room to spread, they will extend their Branches to a great Distance on every Side, near the Ground; and seldom make much Progress upward; but rather form their Heads into a conical Figure.

Where this Tree naturally grows,

is not easy to determine; for it is not a Native of *Europe*, there being none of them found now growing, but in such Places where they have been planted; so that there are not any of them found in Woods, or uncultivated Places: this Sort certainly is in plenty in *China*, from whence I have several times received the Seeds; and in a Collection of the *Materia Medica*, which was brought me from thence, were a Parcel of these Nuts: in many of the *China Paintings* there are some of these Trees exhibited; but whether it grows naturally in that Country, I cannot learn.

This Sort thrives very well in *England*, when it is planted in a warm Situation; but it is too tender to thrive in cold exposed Places, where in severe Frost the Leaves are generally killed; and many times all the tender Shoots are destroyed, whereby the Trees are rendered very unsightly; but in warm Situations, where these Trees thrive well, they make a very handsome Appearance; but in order to get them up with Stems, they should be planted pretty close, that they may be drawn upright, otherwise they will send forth many lateral Branches near the Ground to a great Distance, which will prevent their growing tall: and as these resinous Trees are apt to bleed greatly when they are pruned, their lateral Branches should never be encouraged; because they cannot be pruned off with Safety, when they are grown large.

This Tree is propagated by Seeds, which should be sown in *March*, on a Border of light Earth exposed to the morning Sun: the best Way will be to draw Drills about two Inches deep, into which the Seeds may be scattered about an Inch asunder: the Drills may be drawn about

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about three Inches Distance from each other. If the Spring should prove very dry, it will be proper to supply the Border with Water twice a Week : for as the Covers of the Seed are very hard unless they have a pretty good Share of Moisture, they will not vegetate ; but when the Coverings burst, and the young Plants begin to come out, the Watering must be but sparingly performed ; for too much Wet will rot the tender Stems of the Plants : they must also be carefully defended from Birds, otherwise they may be all destroyed in a few Hours, by these rapacious Creatures, which are fond of pecking the Heads off these Plants before they are well out of the Ground : and if the Bed is shaded in the Heat of the Day from the Sun, it will prevent the Earth from drying too fast ; and preserve the Plants from being injured by the Violence of the Sun's Heat, which they cannot well bear the first Season. Sometimes in dry Seasons I have known the Seeds remain a Year in the Ground, and often three or four Months : therefore the Border or Bed in which they are sown should not be disturbed, if the Plants should not come up so soon as they are expected.

If the Seeds succeed well, the Plants will appear in about five or six Weeks after they are sown ; and then the Directions before given must be observed, as also to keep the Bed clean from Weeds ; and if in dry Weather they are gently watered two or three times a Week, it will promote the Growth of the Plants : but this must be performed with great Care ; for if it is poured too hastily, or given in too great Plenty, it will cause the Stems to rot just at the Surface of the Ground ; and for want of this Care great Numbers of these Plants have been destroyed

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soon after they made their Appearance above-ground.

As many of the Sorts of Pines are with some Difficulty preserved thro' the first Winter, but particularly the manured Pine, the best Method of treating them is to transplant them about *Midsummer*, out of the Seed-bed, choosing, if possible, a cloudy Day for this Work : but whenever this is done, the Plants should be kept as little time out of the Ground as possible, lest their tender Fibres should be dried by the Air : to prevent which, it will be proper to have shallow Pans of Water, into which the Plants may be laid, as they are taken up, and so carried to the Place where they are to be planted. All the other Sorts of Pines may then be planted in Beds, at about four Inches Distance every Way ; and the Beds should be arched over with Hoops, that they may be covered every Day with Mats, to screen the Plants from the Sun, until they have taken good Root : but as this Sort of Pine is with Difficulty transplanted, it will be the surest Method to plant them into small Pots, at their first removing out of the Seed-bed : if the Pots are plunged close together, either in a common Border, or an old Bed of Tan, which has no Heat, it will prevent the Earth in the Pots from drying too fast : and then these may also be arched over, and covered with Mats in the same manner as the other : and if these are continued in the same Bed all the following Winter, they may be covered in severe Frost, which often destroys the Plants while they are young, when they are exposed to it.

The Plants should be shifted out of the Pots when their Roots have filled them, and planted into larger Pots ; being careful in the doing of this, not to shake the Earth from their Roots ; and if the Pots are plunged

into the Earth, it will prevent the Earth in the Pots from drying too fast in Summer, and also keep out the Frost in Winter: which, if the Pots stood on the Surface of the Ground, would penetrate thro' the Sides to the Roots of the Plants, and injure them greatly; these Plants may remain three or four Years in Pots; by which time they will have acquired sufficient Strength to be planted where they are designed to remain, which may be performed at almost any time of the Year; because they must be shaken out of the Pots with the whole Ball of Earth; so will not feel their Removal: but if it can be done in *April*, just before the Plants begin to shoot, they will then have the whole Summer to get rooting in their new Quarters; so will be in less Danger of suffering the following Winter by the Cold: altho' there is Trouble in the Management of the Plants in this Method, yet I am certain there is no other way of propagating or transplanting them with Safety; therefore it is that I would recommend this to every Person, who is desirous to have these Trees in their Gardens or Plantations.

The *Pina* after hath been long cultivated in *England*: but of late Years hath been in less Esteem than formerly; because as they grow large, their Branches are ragged, and bare of Leaves; so that they have but an indifferent Appearance; tho' while they are young, the Plants make great Progress, and have an handsome Appearance; which has tempted many Persons to propagate these Trees; but as they have advanced in Stature, they have declined in Beauty; and their Wood being of little Value, has in a great measure brought them into Disrepute.

The *Scotch* Pine, which is general-

ly called the *Scotch* Fir, is the most profitable of all the Sorts, to cultivate in large Plantations; and will grow in almost any Soil or Situation; for in the most barren Sand, where little else but Fern and Heath would grow, I have seen Plantations of these Trees thrive much beyond Expectation; and upon chalky Hills, where there have been scarce three Inches of Earth, there are many noble Plantations of this Sort. I have also observed, where they have been planted in a strong Clay, and also in a moist peaty Soil, that they have grown to Admiration; so that there is no Part of *England*, in which these Trees might not be propagated to considerable Advantage.

But where these Trees are design'd to be planted in large Quantities, it will be much the better way to make a Nursery on the Spot where the Seeds should be sown, and the Plants raised until they are three Years old, which is a proper Age to plant them out for good; for the younger they are planted, the better they will thrive, provided they are kept clear from Weeds: and if the Situation where they are intended to stand is much exposed to Winds, the Plants should be planted closer together, that they may be a Shelter to each other, and draw themselves upward: and as the Trees advance, they may be thinned by degrees; and the Thinnings of these Plantations have, in many Places, paid the Expence of planting for; these are very serviceable for Scaffolding, and many other useful Businesses.

It is the Wood of this Tree which is the red or yellow Deals, and is more valuable than that of any other Sort of Pine or Fir: this is a Native of *Denmark*, *Sweden*, and many

many other Northern Countries : and in the Highlands of *Scotland* there are several large Woods of this Tree now growing ; and the Seeds being brought from thence into *England*, has occasioned the Name of *Scotch Fir* being generally applied to it here ; but in *Norway* it is called *Grana*.

The Cluster Pine is by most Persons little known ; for the Pinafter, as also the two other Sorts of mountain Pipes, are in many Places cultivated by this Name ; and, in short, every Sort, whose Cones are produced in large Bunches : but the Sort here mentioned was brought from *America*, and is very different from either of these: there were two or three of these Trees growing some Years since in the Gardens of the Bishop of *London*, at *Fulham*, which produced plenty of Cones several Years.

The fifth Sort, which is commonly called Lord *Weymouth's Pine*, or the *New-England Pine*, is by much the tallest-growing Tree of all the Kinds ; and the Leaves being very long, and closely placed on the Branches, renders it more beautiful than any other ; and the Bark of the Stems and Branches is also exceeding smooth, which is an Addition to the Beauty of the Tree: the Leaves of this Sort are produced five out of each Sheath ; and are of a glaucous Colour : the Trees generally form themselves into conical Heads, and have strait Stems, which rise to more than one hundred Feet high, in the Countries where it naturally grows : there are some very tall Trees of this Kind, at Sir *Wyndham Knatchbull's* Seat near *Ashford* in *Kent* ; which have been many Years there unnoticed, till, about twenty-six Years ago, the Seeds were brought to *London* for Sale: there are also some large Trees of this Kind growing at

Longleat, the Seat of the Right Hon. the Lord Viscount *Weymouth*, which have produced Cones many Years past; and from thence the Trees were called *Lord Weymouth's Pine*. The Cones of this Sort are long, the Scales loose and flat : the Seeds are pretty large, and frequently drop from the Cones, if they are not gathered early in Autumn: this Tree delights in a moist loose Soil ; for in the natural Places of its Growth the Ground is wet, and of a loose Texture. In *New-England*, *Virginia*, *Carolina*, and several other Parts of *North-America*, these Trees abound, where they are called the white Pine ; but the Wood is little esteemed there, being soft, and very white : however, for such Plantations as are design'd for Pleasure, there is not any of the Species equal to this for Beauty, where the Trees thrive well.

The sixth, seventh, eighth, ninth, tenth, eleventh, twelfth, and thirteenth Sorts grow in *Spain*, *Portugal*, *Italy*, *Austria*, and other Parts of *Europe*, where there are some other Varieties than are here enumerated : but as very few of these have been introduced into *England*, they cannot be well distinguished from the others, by the imperfect Descriptions which we have of them in Books : most of these Sorts are Inhabitants of the mountainous Parts of *Europe* ; so they are very hardy in respect to Cold ; therefore they may be easily propagated in *England*, were their Seeds brought hither in the Cones : some of these are of very humble Growth, particularly the eleventh and twelfth, which in many Places do not exceed four Feet high, and produce plenty of Cones : the other Sort grows after the same manner as the second Sort ; so are not very beautiful Trees ; but a few of each

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each Sort may be interspersed with the other more valuable Kinds, in large Plantations of ever-green Trees, by way of Variety.

The fourteenth and fifteenth Sorts grow in the *Levant*, from whence their Seeds have been brought to *England*, where there are several Plants of the fifteenth Sort now growing in some curious Gardens; but the fourteenth is more rare at present: these are not quite so hardy as the others; for in the severe Winter of 1739. I had several Plants of both Kinds which were intirely destroyed; some of which were upward of ten Feet high; but they will endure the Cold of our common Winters very well. There are two Plants of the fifteenth Sort in the Gardens of his Grace the Duke of *Richmond* at *Goodwood* in *Sussex*, which have produced Cones for some Years past; but they have not perfected their Seeds as yet.

The Branches of these Trees are slender, and extend to a great Distance from the Trunk; they are produced in Circles at Distances above each other; but grow very irregular and loose: the Leaves are long, slender, and of a deep-green Colour: the Cones are shaped somewhat like those of the manured Pine; but are much smaller: the Seeds of this Kind will keep good some Years, when taken out of the Cones. I have sown of these Seeds when three Years old, which grew as well as any new Seeds of the same Year; and the Plants came up in a Bed of common Earth without Trouble.

The sixteenth, seventeenth, eighteenth, and nineteenth Sorts are Natives of *America*; from whence their Cones have been sent to *England*; and many of the Plants have been raised: these grow in *New-England*,

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Maryland, *Virginia*, and *Carolina*: the sixteenth Sort grows to be a large Tree, and makes an handsome Appearance; and when planted in a moist light Soil, is very quick of Growth: but the seventeenth is by far the finer Sort, tho' at present very rare in *England*: the Leaves of this Sort are of a great Length, and are three or four produced from each Sheath: the Cones are large, and almost in Shape of those of the manured Pine: there was a great Number of these Trees growing in the Gardens of Mr. *Ball*, near *Exeter*, which were all destroyed by transplanting them at an improper Season.

The eighteenth Sort is scarce worthy of a Place, on account of its irregular Growth. This Sort never grows to any great Size in its native Country, and soon becomes ragged and unsightly: there have been great Numbers of Trees of this Sort raised in *England*, since the Taste for introducing of Foreign Trees and Shrubs has prevail'd here; but in many Places they are already become so unsightly, that they are at present destroying by their Owners.

There are very few Plants of the nineteenth Sort at present in *England*, which are grown to any Height; but some Years ago there were many of them growing at Mr. *Ball's*, near *Exeter*, which were upward of ten Feet high; but these were destroyed by their Owner, who did not like them: this Sort grows on Swamps in *America*, and is with Difficulty preserved upon dry Land; nor do the Plants make much Progress when placed in such Situations: the Leaves of this Sort are very long, and of a dark-green Colour: the Stems of the Plants are of a loose Texture, covered with a rugged Bark; so are not very beautiful:

beautiful: this Sort is not so hardy as the others; therefore requires to have a warm Situation, and should be defended from severe Frosts while the Plants are young.

There are some other Species of these Trees, which are Natives of *America*; but those here mentioned are what I have met with in the *English* Gardens; nor can I learn how the other Sorts differ from these, altho' some of the Inhabitants distinguish them by Names of their own adopting: there are also some Sorts which grow in *Russia* and *Siberia*, which are different from those here enumerated: but the few Plants which have been raised in *England*, from the Seeds which have been procured from thence, make so little Progress here, as to give no Hopes of their growing to any Size in this Country; so I have omitted their Names in this List.

All the Sorts of Pines are propagated by Seeds, which are produced in hard woody Cones: the way to get out their Seeds is, to lay the Cones before a Fire, which will cause the Cells to open; and then the Seeds may be easily taken out: if the Cones are kept intire, the Seeds will remain good some Years; so that the surest way to preserve them is, to let them remain in the Cones until the time for sowing the Seeds: but if the Cones are kept in a warm Place in Summer, they will open, and emit the Seeds; but if they are not exposed to much Heat, they will remain intire some Years; and the Seeds which have been taken out of Cones of seven Years old, have grown very well; so that these may be transported from any Distance, provided the Cones are well ripened, and properly put up.

The best time for sowing the Seeds of Pines is about the Middle of

March; and when the Seeds are sown, the Place should be covered with Nets, to keep off Birds; otherwise, when the Plants begin to appear with the Husk of the Seed on their Tops, the Birds will pick off the Heads of the Plants, and destroy them. What is before mentioned of transplanting the young Plants about *Midsummer*, I beg leave to repeat again here, because I have seen this practised with great Success: and it frequently happens, that the Plants which remain in the Place where they were sown, die away in Patches: nor do the Plants which remain grow near so strong as those which are pricked out young: but when this is done, the Plants must be water'd and shaded until they have taken fresh Root; after which time the only Culture they require is, to keep them clean from Weeds. In these Beds the Plants may remain till the next Spring twelve Months after: by which time the Plants will be fit to transplant where they are to remain for good; for the younger the Plants are, when planted out, the better they will succeed; for altho' some Sorts will bear transplanting at a much greater Age, yet young Plants planted at the same time will in a few Years overtake the large Plants, and soon outstrip them in their Growth: and there is an Advantage in planting young, by saving the Expence of Staking, and much Watering, which large Plants require. I have several times seen Plantations of several Sorts of Pines, which were made of Plants six or seven Feet high; and at the same time others of one Foot high planted between them; which in ten Years were better Trees than the old ones, and much more vigorous in their Growth: but if the Ground where they are design'd to remain, cannot
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be prepared by the time the Plants should be planted out, they may be removed out of the Beds into a Nursery, where they may remain two Years, but not longer; for it will be very hazardous removing these Trees at a greater Age.

The best Season to transplant all the Sorts of Pines is about the Latter-end of *March*, or the Beginning of *April*, just before they begin to shoot: for altho' the *Scotch Pine*, and some of the most hardy Sorts, may be transplanted in Winter, especially when they are growing in strong Land, where they may be taken up with Balls of Earth to their Roots; yet this is what I would not advise for common Practice, having frequently seen it attended with bad Consequences; but those which are removed in the Spring rarely fail.

Where these Trees are planted in exposed Situations, they should be put pretty close together, that they may shelter each other; and when they are too close, Part of the Plants may be cut down, to give room for the others to grow: but this must be gradually performed, lest by too much opening the Plantation, the Air should be let in among the remaining Trees with too great Violence, which will stop the Growth of the Trees.

Altho' these ever-green Trees are by many Persons despised on account of their Dark-green in Summer; yet a proper Mixture of these in large Clumps makes a fine Appearance about a Seat in Winter; and in Summer, by their Contrast with other Trees, has no bad Effect in diversifying the Scene.

PISONIA, Fingrigo, *vulgo*.

The Characters are;

It is Male and Female in different Plants: the Male Flowers consist of a great Number of Stamina, and have

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no Petals: the Female Flower consists of one Leaf, which is bell-shaped, and divided at the Top into five Parts; from whose Cup arises the Pointal, which afterward becomes an oblong angular chanelled Fruit, containing oblong Seeds.

The Species are;

1. *PISONIA aculeata mas. Houst.*
The Male Fingrigo.

2. *PISONIA aculeata, fructu glutinoso & racemoso. Plum. Nov. Gen.*
Prickly Pisonia, with a glutinous and branching Fruit.

These Plants are seminal Variations, which arise from the Seeds of the same Plant; but as they were not distinguish'd by any of the Botanists, till the late Dr. *Houstoun* observed their Difference, therefore I thought proper to mention the different Sexes as separate Plants.

The Name of this Plant was given by Father *Plumier* in Honour to Dr. *William Piso*, who publish'd a Natural History of *Brasil*. The Name of *Fingrigo* is what the Inhabitants of *Jamaica* know it by.

These Plants are very common in the *Savanna's*, and other low Places, in the Island of *Jamaica*, as also in several other Places in the *West-Indies*; where it is very troublesome to whoever passes through the Places of their Growth, by fastening themselves, by their strong crooked Thorns, to the Cloaths of the Persons; and their Seeds, being glutinous, also fasten themselves to whatever touches them: so that the Wings of the Ground-doves, and other Birds, are often so loaded with the Seeds, as to prevent their flying; by which means they become an easy Prey.

It rises about ten or twelve Feet high, with a pretty strong Trunk: but the Branches are long and slender, which, being unable to support them-

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themselves, generally twist about whatever Plants are near them.

In *Europe* this Plant is preserved in the Gardens of some curious Persons for Variety: it is propagated by Seeds, which should be sown in Pots filled with light rich Earth, and plunged into an Hot-bed of Tanners Bark; and when the Plants come up, they should be transplanted into separate Pots, and plunged into the Hot-bed again; where they may remain till *Michaelmas*, when they should be removed into the Stove, and plunged into the Bark-bed, and treated in the same manner as hath been directed for several tender Plants of the same Country; observing in hot Weather to give them plenty of Water; but in Winter they should have it more sparingly. They are too tender to thrive in the open Air of this Country at any Season of the Year; wherefore they should be constantly kept in the Stove.

PISTACHIA. *Vide* Terebinthus.

PISUM, Pea.

The Characters are;

It is a Plant with a papilionaceous Flower, out of whose Empalement rises the Pointal, which afterward becomes a long Pod, full of roundish Seeds: to which must be added, Fistulous Stalks, for the most part weak, which the Leaves embrace in such a manner, that they seem to be perforated by them; but the other Leaves grow by Pairs along the Mid-rib, ending in a Tendril.

The Species are;

1. *PISUM hortense majus, flore fructuque albo.* C. B. P. The greater Garden Pea, with white Flowers and Fruit.

2. *PISUM præcox Anglicum.* Boerb. Ind. Hotspur Pea, vulgo.

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3. *PISUM humile, caule firmo.* Tourn. The Dwarf Pea.

4. *PISUM humile Gallicum.* Boerb. Ind. French Dwarf Pea.

5. *PISUM cortice eduli.* Tourn. Pea with an esculent Husk.

6. *PISUM siliqua carnosâ incurva, seu falcata eduli.* Raii Hist. The Sickle Pea.

7. *PISUM arvense, fructu albo.* C. B. P. Common White Pea.

8. *PISUM arvense, fructu viridi.* C. B. P. Green Rouncival Pea.

9. *PISUM arvense, fructu cinereo.* C. B. P. The Grey Pea.

10. *PISUM arvense, flore roseo, fructu variegato.* Raii Hist. Marble Rouncival Pea.

11. *PISUM umbellatum.* C. B. P. The Rose Pea, or Crown Pea.

12. *PISUM maximum, fructu nigra linea maculato.* H. R. Par. The Spanish Morotto Pea.

13. *PISUM hortense, siliqua maxima.* H. R. Par. The Marrow-fat or Dutch Admiral Pea.

14. *PISUM fructu maximo ex viridi obsoleto.* Boerb. Ind. The Union Pea.

15. *PISUM spontaneum maritimum Anglicum.* Park. Theat. English Sea Pea.

16. *PISUM arvense, fructu è luteo wirecente.* C. B. P. Pig Peas.

There are several other Varieties of the Garden Peas, which differ in the Colour of their Flowers and Fruit, and are by some Persons distinguish'd by Names as distinct Sorts; but as they are very subject to vary when sown two or three Years in the same Place, there can be no Doubt of their being seminal Variations, which are not worth enumerating in this Place.

The English Sea Pea is found wild upon the Shore in *Suffex*, and several other Counties in *England*. This was

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was first taken notice of in the Year 1555. between *Orford* and *Aldbrough*, where it grew upon the Heath, where nothing, no not Grasse, was ever seen to grow; and the poor People, being in Distress, by reason of the Dearth of that Year, gathered large Quantities of these Peas, and so preserv'd themselves and Families. This is mention'd by *Stow* in his *Chronicle*, and *Camden* in his *Britannia*: but they were both mistaken, in imagining that they were Peas cast on Shore by a Shipwreck, seeing they grow in divers other Parts of *England*, and are undoubtedly a different Species from the common Pea.

The sixteenth Sort is greatly cultivated in the Fields in *Dorsetshire*, where they are known by the Name of Pig Peas, the Inhabitants making great Use of them to feed their Hogs: These are often brought up to *London*, and sold for the same Purpose.

I shall now proceed to set down the Method of cultivating the several Sorts of Garden Peas, so as to continue them throughout the Season.

It is a common Practice with the Gardeners near *London*, to raise Peas upon Hot-beds, to have them very early in the Spring; in order to which, they sow their Peas upon warm Borders under Walls or Hedges, about the Middle of *October*; and when the Plants come up, they draw the Earth up gently to their Stems with an Hoe, the better to protect them from Frost: in these Places they let them remain until the Latter-end of *January*, or the Beginning of *February*; observing to earth them up from time to time, as the Plants advance in Height (for the Reasons before laid down); as also to cover them in very hard Frost with Peas-haulm, Straw, or some

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other light Covering, to preserve them from being destroy'd: then, at the time before-mention'd, they make an Hot-bed (in proportion to the Quantity of Peas intended), which must be well work'd in laying the Dung, that the Heat may not be too great. The Dung should be laid about two Feet thick, or somewhat more, according as the Beds are made earlier or later in the Season: when the Dung is equally levell'd, then the Earth (which should be light and fresh, but not over-rich) must be laid on about six or eight Inches thick, laying it equally all over the Bed. This being done, the Frames (which should be two Feet on the Back-side, and about fourteen Inches in Front) must be put on, and cover'd with Glasses; after which it should remain three or four Days, to let the Steam of the Bed pass off, before you put the Plants therein; observing every Day to raise the Glasses either with Bricks or Stones, to give Vent for the rising Steam to pass off; then, when you find the Bed of a fine moderate Temperature for Heat, you should, with a Trowel, or some other Instrument, take up the Plants as carefully as possible, to preserve some Earth to the Roots, and plant them into the Hot-bed in Rows, about a Foot asunder; and the Plants should be set about an Inch and an half, or two Inches, distant from each other in the Rows; observing to water and shade them until they have taken Root: after which you must be careful to give them Air, at all times when the Season is favourable; otherwise they will draw up very weak, and be subject to grow mouldy, and decay. You should also draw the Earth up to the Shanks of the Plants, as they advance in Height; and keep them always clear from

from Weeds: the Water they should have, must be given them sparingly; for if they are too much water'd, it will cause them to grow too rank, and sometimes rot off the Plants at their Shanks, just above-ground. When the Weather is very hot, you should cover the Glasses with Mats in the Heat of the Day, to screen them from the Violence of the Sun, which is then too great for them, causing their Leaves to flag, and their Blossoms to fall off without producing Pods; as will also the keeping of the Glasses too close at that Season. But when the Plants begin to fruit, they should be water'd oftener, and in greater Plenty, than before; for by that time the Plants will have nearly done growing, and the often refreshing them will occasion their producing a greater Plenty of Fruit.

The Sort of Pea which is always used for this Purpose, is the Dwarf; for all the other Sorts ramble too much to be kept in Frames: the Reason for sowing them in the common Ground, and afterward transplanting them on an Hot-bed, is also to check their Growth, and cause them to bear in less Compass; for if the Seeds were sown upon an Hot-bed, and the Plants continued thereon, they would produce such luxuriant Plants as not to be contained in the Frames, and would bear but little Fruit.

The next Sort of Pea, which is sown to succeed those on the Hot-bed, is the Hotspur, of which there are reckon'd three or four Sorts; as the *Charlton* Hotspur, the *Master's* Hotspur, the *Reading* Hotspur, and some others; which are very little differing from each other, except in their early Bearing, for which the *Charlton* Hotspur is chiefly preferred; though, if either of these Sorts are cultivated in the same Place for

three or four Years, they are apt to degenerate, and be later in Fruiting: for which Reason, most curious Persons procure their Seeds annually from some distant Place; and in the Choice of these Seeds, if they could be obtained from a colder Situation, and a poorer Soil, than that in which they are to be sown, it will be much better than on the contrary, and they will come earlier in the Spring.

These must also be sown on warm Borders, toward the Latter-end of *October*; and when the Plants are come up, you should draw the Earth up to their Shanks in the manner before directed; which should be repeated as the Plants advance in Height (always observing to do it when the Ground is dry), which will greatly protect the Stems of the Plants against Frost; and if the Winter should prove very severe, it will be of great Service to the Plants to cover them with Peas-haulm, or some other light Covering; which should be constantly taken off in mild Weather, and only suffer'd to remain on during the Continuance of the Frost: for if they are kept too close, they will be drawn very weak and tender, and thereby be liable to be destroy'd with the least Inclemency of the Season.

In the Spring you must carefully clear them from Weeds, and draw some fresh Earth up to their Stems; but do not raise it too high to the Plants, lest, by burying their Leaves, you should rot their Stems; as is sometimes the Case, especially in wet Seasons. You should also observe to keep them clear from Vermin; which, if permitted to remain amongst the Plants, will increase so plentifully, as to devour the greatest Part of them. The chief of the Vermin which infest Peas, are the Slugs, which lie all the Day in the small
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Hollows of the Earth, near the Stems of the Plants, and in the Night-time come out, and make terrible Destruction of the Peas; and these chiefly abound in wet Soils, or where a Garden is neglected, and over-run with Weeds: therefore you should make the Ground clear every Way round the Peas, to destroy their Harbours; and afterwards, in a fine mild Morning, very early, when these Vermin are got abroad from their Holes, you should flake a Quantity of Lime, which should be sown hot over the Ground, pretty thick; which will destroy the Vermin, where-ever it happens to fall upon them; but will do very little Injury to the Peas, provided it be not scatter'd too thick upon them: this is the best Method I could ever find to destroy these troublesome Vermin.

If this Crop of Peas improves, it will immediately succeed those on the Hot-bed; but for fear this should miscarry, it will be proper to sow two more Crops, at about a Fortnight's time from each other; so that there may be the more Chances to succeed: this will be sufficient until the Spring of the Year, when you may sow three more Crops of these Peas; one toward the Beginning of *January*, the other a Fortnight after, and the third at the End of *January*. These two late Sowings will be sufficient to continue the early Sort of Peas through the first Season, and after this it will be proper to have some of the large Sort of Peas to succeed them: in order to which, you should sow some of the *Spanish Morotto*, which is a great Bearer, and an hardy Sort of Pea, about the middle of *February*, upon a clear open Spot of Ground: these must be sown in Rows, about three Feet asunder; and the Peas should

be dropp'd in the Drills about an Inch and an half Distance, covering them about two Inches deep with Earth; being very careful that none of them lie uncover'd, which will draw the Mice, Pigeons, or Rooks, to attack the whole Spot; and it often happens by this Neglect, that a whole Plantation is devour'd by these Creatures; whereas, when there are none of the Peas left in Sight, they do not so easily find them out.

About a Fortnight after this, you should sow another Spot, either of this Sort, or any other large Sort of Pea, to succeed those; and then continue to repeat sowing once a Fortnight, till the middle or Latter-end of *May*, some of these Kinds; only observing to allow the Marrow-fats, and other very large Sorts of Peas, at least 3 Feet and an half or 4 Feet between Row and Row; and the Rose-pea should be allowed at least 8 or 10 Inches Distance Plant from Plant, in the Rows; for these grow very large, and if they have not room allowed them, they will spoil each other by drawing up very tall, and will produce no Fruit.

When these Plants come up, the Earth should be drawn up to their Shanks (as was before directed), and the Ground kept intirely clear from Weeds; and when the Plants are grown eight or ten Inches high, you should stick some rough Boughs, or Brush-wood, into the Ground close to the Peas, for them to ramp upon; which will support them from trailing upon the Ground, which is very apt to rot the large-growing Sorts of Peas, especially in wet Seasons; besides, by thus supporting them, the Air can freely pass between them, which will preserve the Blossoms from falling off before their time, and occasion them to bear much better, than if permitted to lie upon the Ground;

Ground; and there will be room to pass between the Rows to gather the Peas when they are ripe.

The Dwarf Sorts of Peas may be sown much closer together, than those before-mention'd; for these seldom rise above a Foot high, and rarely spread above half a Foot in Width; so that these need not have more room than two Feet Row from Row, and not above an Inch asunder in the Rows. These will produce a good Quantity of Peas, provided the Season be not over-dry; but they seldom continue long in bearing; so that they are not so proper to sow for the main Crop, when a Quantity of Peas is expected for the Table; their chief Excellency being for Hot-beds, where they will produce a greater Quantity of Peas (provided they are well manag'd) than if expos'd to the open Air, where the Heat of the Sun soon dries them up.

The Sickle-pea is much more common in *Holland* than in *England*, it being the Sort mostly cultivated in that Country; but in *England* they are only propagated by curious Gentlemen for their own Table, and are rarely brought into the Markets. This Sort the Birds are very fond of; and if they are not prevented, many times destroy the whole Crop. This should be planted in Rows, about two Feet and an half asunder; and be managed as hath been directed for the other Sorts.

Although I have directed the sowing of the large Sorts of Peas for the great Crop, yet these are not so sweet as the early Hotspur Peas; therefore it will also be proper to continue a Succession of those Sorts through the Season, in small Quantities, to supply the best Table; which may be done, by sowing some every Week: but all those which are sown late in the Season, should

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have a strong moist Soil; for in hot light Land they will burn up, and come to nothing.

The large-growing Sorts may be cultivated for the common Use of the Family; because these will produce in greater Quantities than the other, and will endure the Drought better: but the early Kinds are by far the sweeter tasted Peas.

The best of all the large Kinds is the Marrow-fat; which, if gathered young, is a well-tasted Pea; and this will continue good through the Month of *August*, if planted on a strong Soil.

The Grey, and other large Winter-peas, are seldom cultivated in Gardens, because they require a great deal of room; but are usually sown in Fields, in most Parts of *England*. The best time for sowing of these is about the Beginning of *March*, when the Weather is pretty dry; for if they are put into the Ground in a very wet Season, they are apt to rot, especially if the Ground be cold: these should be allowed at least three Feet Distance Row from Row, and must be sown very thin in the Rows; for if they are sown too thick, the Haulm will spread so as to fill the Ground, and ramble over each other; which will cause the Plants to rot, and prevent their Bearing.

The common White Pea will do best on light sandy Land, or on a rich loose Soil. The usual Method of sowing these Peas is with a broad Cast, and so harrow them in: but it is a much better way to sow them in Drills, about two Feet and an half asunder; for half the Quantity of Seed will do for an Acre; and being set regularly, the Ground may be stirr'd with an Hoe-plough to destroy the Weeds, and earth up the Peas, which will greatly improve them; and these Peas may be much

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easier cut in Autumn, when they are ripe. The usual time for sowing of these Peas is about the Latter-end of *March*, or the Beginning of *April*, on warm Land; but on cold Ground they should be sown a Fort-night or three Weeks later. In the common way of sowing, they allow three Bushels or more to an Acre; but if they are drilled, one Bushel and an half will be full enough.

The Green and Maple Rouncivals require a stronger Soil than the White, and should be sown a little later in the Spring; also the Drills should be made at a greater Distance from each other; for as these are apt to grow rank, especially in a wet Season, they should be set in Rows three Feet asunder; and the Ground between the Rows should be stirr'd two or three times with an Hoe-plough; which will not only destroy the Weeds, but, by earthing up the Peas, will greatly improve them; and also render the Ground better, to receive whatever Crop is put on it the following Season.

The Grey Peas thrive best on a strong clayey Land: these are commonly sown under Furrows; but by this Method they are always too thick, and do not come up regular: therefore all these rank-growing Plants should be sown in Drills, where the Seeds will be more equally scatter'd, and lodged at the same Depth in the Ground; whereas, in the common way, some of the Seeds lie twice as deep as others, and are not scatter'd at equal Distances. These may be sown toward the End of *February*, as they are much harder than either of the former Sorts; but the Culture should be the same.

The best Method to sow these Peas is, to draw a Drill with an Hoe by a Line, about two Inches deep, and then scatter the Seeds therein; after

which, with a Rake you may draw the Earth over them, whereby they will be equally cover'd; and this is a very quick Method for Gardens; but where they are sown in Fields, they commonly make a shallow Furrow with the Plough, and scatter the Seeds therein, and then with an Harrow they cover them over again. After this, the great Trouble is, to keep them clear from Weeds, and draw the Earth up to the Plants: this, in such Countries where Labour is dear, is a great Expence to do it by the Hand with an Hoe; but this may be easily effected with an Hoeing-plough, which may be drawn thro' between the Rows; which will intirely eradicate the Weeds, and, by stirring the Soil, render it mellow, and greatly promote the Growth of the Plants.

When any of these Sorts are intended for Seed, there should be as many Rows of them left ungather'd, as may be thought necessary to furnish a sufficient Quantity of Seed; and when the Peas are in Flower, they should be carefully look'd over, to draw out all those Plants which are not of the right Sort; for there will always be some roguish Plants (as the Gardeners term them) in every Sort, which, if left to mix, will degenerate the Kind. These must remain until their Pods are changed brown, and begin to split, when you should immediately gather them up, together with the Haulm; and, if you have not room to stack them up till Winter, you may thresh them out as soon as they are dry, and put them up in Sacks for Use: but you must be very careful not to let them remain too long abroad after they are ripe; for if Wet should happen, it would rot them; and Heat, after a Shower of Rain, would cause their Pods to burst, and cast forth their Seeds,

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Seeds, so that the greatest Part of them would be lost ; but, as I said before, it is not adviseable to continue sowing of the same Seed longer than two Years, for the Reasons there laid down ; but rather to exchange their Seeds every Year, or two Years at least, whereby you may always expect to have them prove right.

PISUM CORDATUM. Vide Corindum.

PITTONIA.

The Characters are ;

It hath a globular bell-shaped Flower, consisting of one Leaf, which is cut into several Segments at the Brim ; from whose Cup arises the Pointal, which afterward becomes a soft spherical Berry full of Juice, inclosing two Seeds, which are for the most part oblong.

The Species are ;

1. PITTONIA *arborescens chamaedrifolia major*. Plum. Nov. Gen. Greater tree-like Pittonia, with a Germander-leaf.

2. PITTONIA *arborescens chamaedrifolia minor*. Plum. Nov. Gen. Smaller tree-like Pittonia, with a Germander-leaf.

3. PITTONIA *humilis, ancbusæ foliis*. Plum. Nov. Gen. Dwarf Pittonia, with Alkanet-leaves.

4. PITTONIA *scandens, baccis nigris, nigris maculis notatis*. Plum. Nov. Gen. Climbing Pittonia, with white Berries spotted with Black.

5. PITTONIA *frutescens, folio carnos, hirsuto & obtuso*. Plum. Nov. Gen. Shrubby Pittonia, with an hairy fleshy obtuse Leaf.

6. PITTONIA *hirsutissima & ramosissima, baccis albis*. Plum. Nov. Gen. The most hairy and branching Pittonia, with white Berries.

7. PITTONIA *racemosa, Nicotianæ foliis fætidissimis*. Plum. Nov. Gen. The most stinking branching Pittonia, with Tobacco-leaves.

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All these Plants are Natives of the warmest Parts of *America*, where the first Sort grows to the Height of twelve or fourteen Feet, and divides into many Branches, so as to form a small Tree. The second, fifth, and seventh Sorts grow to the Height of eight or nine Feet, and produce many Branches near their Roots, so as to form thick Bushes.

They may all be propagated by Seeds, which should be sown early in the Spring, in Pots filled with fresh Earth, and plunged into an Hot-bed of Tanners Bark ; and when the Plants are come up, they may be treated after the same manner as hath been directed for the *Persea* : with which Management these Plants will thrive very well, and in a few Years will produce their Flowers. These are preserved by those Persons who are curious in collecting rare Plants, though there is no great Beauty in their Flowers ; however, as they are ever-green, they make a Diversity amongst other Exotic Plants in the Stove in the Winter-season.

PLANTAGO, The Plantain.

There are several Species of this, which are distinguish'd by Botanists, some of which are very troublesome Weeds, in every Part of *England*, and the others are so in the Countries where they grow ; so they are not cultivated in Gardens : therefore I shall not trouble the Reader with an Enumeration of them ; but shall only observe, that the broad-leav'd Plantain, and the Ribwort Plantain, which are both used in Medicine, grow wild in almost every Part of *England* ; so may be easily procur'd for Use.

PLANTAIN-TREE. Vide Musa.

PLATANUS, The Plane-tree.

The Characters are ;

It hath an amentaceous Flower, consisting of several slender Stamina, which are collected into spherical lit-

the Balls, and are barren; but the Embryoes of the Fruit, which are produced on separate Parts of the same Tree, are turgid, and afterward become large spherical Balls, containing many oblong Seeds, intermix'd with Down.

The Species are;

1. *PLATANUS Orientalis verus.* Park. Theat. The true Oriental Plane-tree.

2. *PLATANUS Occidentalis aut Virginienfis.* Park. Theat. The Western or Virginian Plane-tree.

3. *PLATANUS Orientalis, aceris folio.* T. Cor. The Maple-leav'd Plane-tree.

The first of these Trees (though the first-known Sort in Europe) is less common than the second; which has been introduc'd since the *English* settled in *Virginia*; which may be, in a great measure, owing to the latter Sort being much easier to propagate than the former: for every Cutting of this, if planted in a moist Soil, in the Autumn, or early in the Spring, will take Root, and in a few Years make very large Trees; whereas the first is only propagated from Seeds, or by Layers.

The third Sort, although by some supposed to be a distinct Species from either of the former, yet is no more but a feminal Variety of the first: for I have had many Plants, which came up from the Seeds of the first Sort, which ripen'd in the *Physic-garden*, which do most of them degenerate to this third Sort, which, in the manner of its Leaves, seems to be very different from either, and might reasonably be supposed a distinct Sort, by those who have not traced its Original.

These Trees delight to grow on a moist rich Soil, on which they will arrive to a prodigious Size in a few Years, and during the Summer-sea-

son afford a glorious Shade; their Leaves being of a prodigious Size, especially on a good Soil, so that there is scarcely any Tree at present in *England*, which does afford so good a Shade. But the Backwardness of their coming out in Spring, together with their Leaves fading early in Autumn, has occasion'd their not being so generally esteem'd, as otherwise they would be.

The first Sort was brought out of the *Levant* to *Rome*, where it was cultivated with much Cost and Industry: the greatest Orators and Statesmen among the *Romans* took great Pleasure in their *Villa's*, which were surrounded with *Platanus*: and their Fondness for this Tree became so great, that we frequently read of their irrigating them with Wine instead of Water. *Pliny* affirms, that there is no Tree whatsoever which so well defends us from the Heat of the Sun in Summer, nor that admits it more kindly in Winter, the Branches being produc'd at a proportionable Distance to the Largeness of their Leaves (which is what holds through all the different Sorts of Trees yet known); so that when the Leaves are fallen in Winter, the Branches, growing at a great Distance, easily admit the Rays of the Sun.

This Tree was afterwards brought to *France*, where it was cultivated only by Persons of the first Rank; and so much was the Shade of it priz'd, as that if any of the Natives did but put his Head under it, they exacted a Tribute from him.

It is generally supposed, that the Introduction of this Tree into *England* is owing to the great Lord Chancellor *Bacon*, who planted a noble Parcel of them at *Verulam*, which were there, very flourishing, a few Years since. But notwithstanding its having been so long in *England*,

England, yet there are but very few large Trees to be seen of it at present; which may, perhaps, be owing to the great Esteem the Persons of the last Age had for the Lime, which being much easier to propagate, and of quicker Growth during the three or four first Years, than the Plane-tree, thereby it became the most common Tree for Planting of Avenues, and shady Walks near Habitations, in *England*. But since the Defects of that Tree have been more generally discover'd, the Elm has had the Preference, and is the most commonly planted for such Purposes.

However, notwithstanding what has been said of the Plane-tree, of its Backwardness in coming out in the Spring, and the sudden Decay of its Leaves in Autumn; yet, for the goodly Appearance, and great Magnitude to which it will grow, it deserves a Place in large Plantations, or shady Recesses near Habitations, especially if the Plantation be designed on a moist Soil, or near Rivulets of Water; in which Places this Tree will arrive to a prodigious Size.

We read of one of these Trees, which was growing at a *Villa* of the Emperor *Caligula*, whose Trunk was so large, as, when hollow'd, to make a Room therein, capacious enough to entertain ten or twelve Persons at a Repast, and for their Servitors to wait upon them. And there is mention made of one of these Trees, which was growing in the *Eastern* Country, which was of so great a Magnitude, that *Xerxes* made his Army (which consisted of seventeen hundred thousand Men) halt, for some Days, to admire the Beauty and Procerity of this Tree; and became so fond of it, as to take his own, his Concubines, and all the great Persons Jewels to cover it; and was so much enamour'd with it, that

for some Days, neither the Concern of his grand Expedition, nor Interest, nor Honour, nor the necessary Motion of his prodigious Army, could dissuade him from it: he stiled it, *His Mistress, His Minion, His Goddess*: and when he was obliged to part with it, he caus'd a Figure of it to be stamp'd on a Gold Medal, which he continually wore about him.

And such was the Esteem which the People of *Asia* had for this Tree, that where-ever they erected any sumptuous Buildings, the Porticoes, which open'd to the Air, terminated in Groves of these Trees.

The *Eastern* Plane-tree is propagated either from Seeds, or by Layers, the latter of which is generally practis'd in *England*; though the Plants thus rais'd seldom make so large strait Trees, as those which are produc'd from Seeds: but it has been generally thought, that the Seeds of this Tree were not productive, because they have not been sown at a proper Season, nor managed in a right Manner; for I have had thousands of the young Plants spring up from the Seeds of a large Tree, which scatter'd upon the Ground in a moist Place; and I since find, that if these Seeds are sown, soon after they are ripe, in a moist shady Situation, they will rise extremely well; and the Plants, thus obtain'd, will make a considerable Progress after the second Year, being much hardier, and less liable to lose their Tops in Winter, than those which are propagated by Layers. And since the Seeds of this Tree ripen well in *England*, they may be propagated in as great Plenty as any other Forest-tree.

The *Virginian* Plane-tree will grow extremely well from Cuttings, if they are planted the Beginning of *October*, upon a moist Soil; and, if they

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they are water'd in dry Weather, will make a prodigious Progreſs : ſo that in a few Years from the Planting, they will afford noble Trees for planting of Avenues, and other ſhady Walks ; and their Trunks are perfectly ſtrait, growing nearly of the ſame Size to a conſiderable Height, there being the leaſt Difference in the Girt of this Tree, for ſeveral Yards upwards, of any other Sort of Tree whatſoever. The Honourable Paul Dudley, Eſq; in a Letter to the Royal Society, mentions one of theſe Trees, which he obſerv'd in New-England, whoſe Girt was nine Yards, and held its Bigneſs a great Way up ; which Tree, when cut down, made twenty-two Cords of Wood. He alſo ſays, in the ſame Letter, That he had propagated many of theſe Trees by cutting off Sticks of five or ſix Feet long, and ſetting them a Foot deep into the Ground in the Spring of the Year, when the Seaſon was wet ; and that they always thrive beſt in a moiſt Soil.

The Leaves of this Sort are larger, and leſs divided, than thoſe of the Oriental Plane-tree ; and the Tree grows much faſter, and is hardier ; and being thus eaſily propagated, is now the moſt common in England.

The Maple-leav'd Plane-tree hath its Leaves leſs divided than the firſt, but more than the ſecond Sort ; ſo that it is a middle Kind between both : though, as I before ſaid, it comes originally from the Eaſtern Sort.

This is propagated very eaſily by Layers, every Twig of which will take Root, if they are but cover'd with Earth ; and when tranſplanted out in a moiſt Soil, will grow equally faſt with the *Virginian* Kind. But whether this will take from Cuttings or not, I cannot ſay, having never made Trial of it ; though from the Readineſs of the Branches taking

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Root, there is little Reaſon to doubt of it. The beſt time to tranſplant theſe Trees is in *March* ; for if they are removed in Winter, and the Seaſon ſhould prove very ſevere, the tender Shoots are often kill'd by the Froſt.

PLINIA.

The Characters are ;

It hath a bell-shaped Flower conſiſting of one Leaf, which is divided into five Segments at the Brim ; from whoſe Cup riſes the Pointal, which afterward becomes a globular ſoft chanel'd Fruit, in which is included one Seed of the ſame Form.

We know but one Species of this Plant ; which is,

PLINIA fructu croceo odorato. Plum. Nov. Gen. Plinia with a ſweet-ſcented ſaffron-colour'd Fruit.

This Plant was diſcover'd by Father Plumier in the *West-Indies*, who gave it this Name, in Honour to *Pliny* the famous *Natural Hiſtorian*.

It grows in ſeveral Places in the warmer Parts of *America*, from whence the Seeds have been ſent to *Europe*. Theſe Seeds muſt be ſown in Pots filled with light rich Earth, and plunged into an Hot-bed of Tan-ners Bark ; obſerving to moiſten the Earth with Water whenever it appears dry, as alſo to preſerve a moderate Temperature of Heat in the Bed ; ſo that if the Nights ſhould prove cold, the Glaſſes of the Hot-bed ſhould be every Night cover'd with Mats ; and in the middle of the Day the Glaſſes may be raiſed to admit freſh Air, when the Weather is warm. Theſe Seeds will ſometimes remain long in the Ground before the Plants appear ; and whenever it ſo happens, the Pots muſt be conſtantly kept clear from Weeds, and duly watered : and when the Plants come up, they ſhould be
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transplanted into Pots, and may be managed as is directed for the Pittonia.

PLUMBAGO, Leadwort.

The Characters are;

The Flower consists of one Leaf, which is shap'd like a Funnel, and cut into several Segments at the Top; out of whose fistulous Flower-cup rises the Pointal, which afterward becomes one oblong Seed, for the most part sharp-pointed, which ripens in the Flower-cup.

The Species are;

1. **PLUMBAGO quorundam.** Clus. Hist. Leadwort, or Toothwort.
2. **PLUMBAGO flore albo.** Inst. R. H. Leadwort with a white Flower.
3. **PLUMBAGO Orientalis, lapathi folio, flore minori albido.** Tourn. Cor. Eastern Leadwort, with a Dock-leaf, and a smaller whitish Flower.
4. **PLUMBAGO Americana scandens aculeata, betæ folio minori.** Plum. Cat. Prickly climbing American Leadwort, with a lesser Beet-leaf.
5. **PLUMBAGO Americana, betæ folio ampliori.** Plum. American Leadwort, with a broad Beet-leaf.

The first of these Sorts grows about Naples, in Sicily, and the Southern Parts of France; but is hardy enough to endure the Cold of our Climate in the open Ground, provided it be planted in a warm dry Soil. This is propagated by parting of the Roots in the Spring before they shoot: in doing of which, you should be very careful to preserve an Head to each Slip, otherwise they will not grow. They should be planted in a warm Situation, and a dry Soil, about two Feet asunder, and water'd until they take Root; after which they will require no farther Care, but to clear them from Weeds, and support their Branches from being broken by the Wind.

They commonly rise about three Feet high; but, unless the Autumn be very favourable, they seldom flower in this Country. The Flowers of this Sort are blue, and the Root of it is sometimes us'd in Medicine.

The second Sort differs little from the first, except in the Colour of the Flowers, those of this being white; and the Plants grow taller, and flower later in the Year. This is as hardy as the first, and may be treated in the same way.

The third Sort was discover'd by Dr. Tournefort in the Levant, from whence he sent the Seeds into Europe. This Sort hath much broader Leaves than either of the former, and the Plant is of humbler Growth. It may be treated in the same manner as the two former Sorts, and will live in the full Ground, provided it is planted in a dry Soil, and a shelter'd Situation.

The fourth and fifth Sorts are tender; therefore will not live in England in the open Air. These grow in plenty in the British Islands of America, from whence the Seeds were sent me by the late Dr. William Houstoun. The fifth Sort was brought from Ceylon to some curious Gardens in Holland; so that it is probably an Inhabitant of most of the hot Countries.

These Plants may be propagated by Seeds, which should be sown on an Hot-bed in the Spring; and when the Plants are fit to remove, they should be each planted into a separate Pot, and plunged into a fresh Hot-bed, to bring them forward; and afterward should be treated in the same manner as other tender Exotic Plants. For although these Plants will live in the open Air in the Summer-season; yet they will not thrive well, nor produce their

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Flowers; whereas, if they are kept in the Stove in a moderate Warmth, they will flower, and produce good Seeds every Year. These two Sorts may also be propagated by parting of their Roots in *April*; but as they produce good Seeds, they are commonly propagated by those; for the seedling Plants flower better than the Off-sets. They flower most Part of Winter in the Stove, and the Seeds are ripe in the Spring.

PLUM-TREE. *Vide* Prunus.

PLUMERIA, The Jasmine-tree, *vulgo*.

The Characters are;

It hath a funnel-shap'd Flower, consisting of one Leaf, which is cut into several Segments at the Brim, out of whose Cup arises the Pointal, which afterward becomes the Fruit or Pod; which, for the most part, grow double, and open lengthwise; discovering the Seeds, which are oblong, and have a Border round them; these are ranged over each other, like Slates on an House; and are fastened to the Placenta.

The Species are;

1. PLUMERIA *flore roseo odoratissimo. Inst. R. H.* Plumeria with a rose-colour'd sweet-scented Flower, commonly call'd, in the *West-Indies*, Red Jasmine.

2. PLUMERIA *flore majore odorato & incarnato.* Plumeria with a larger sweet-scented and incarnate Flower, called, in the *West-Indies*, The Japan-tree.

3. PLUMERIA *flore niveo, foliis longis angustis & acuminatis. Inst. R. H.* Plumeria with a snowy Flower, and long narrow-pointed Leaves.

4. PLUMERIA *flore niveo, foliis brevioribus & obtusis. Inst. R. H.* Plumeria with a snowy Flower, and shorter blunt Leaves.

5. PLUMERIA *foliis longissimis, minus succulentibus, flore pallido. Houst.*

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Plumeria with very long and less succulent Leaves, and a pale Flower.

6. PLUMERIA *folio latiore obtuso, flore luteo minore.* Plumeria with a broad obtuse Leaf, and a smaller yellow Flower.

This Name was given to this beautiful Genus of Plants, by Dr. *Tournefort*, in Honour to Father *Plumier*, who was Botanist to the late King of *France*, and a long time in *America*, searching after new Plants; and who has published a Catalogue of the Plants he discovered, with the new Genus's he constituted; and two Volumes in *Folio*, with Figures and Descriptions of many of the Plants.

These Plants grow wild in the *Spanish West-Indies*, from whence some of the most beautiful Kinds were brought into the *English* Settlements in *America*, and are cultivated in their Gardens for Ornament. The first Sort here mentioned is the most common Kind, which is preserv'd in the Gardens of the Inhabitants of *Jamaica* and *Barbados*. The Flowers of this Kind nearly resemble those of the red Oleander; but are larger, and have an agreeable Odour. These are produced in small Bunches, at the Extremity of the Shoots, and generally appear in *July* and *August*, in this Climate; but in the *West-Indies* they flower a great Part of the Year.

The second Sort I receiv'd from the Island of *St. Christophers*, by the Name of *Japan-tree*: this Sort is very rare in the *English* Settlements at present, having been but lately introduc'd from the *Spanish West-Indies*. It is in Leaf and Stem very like the first; but the Flowers of this are of a paler Colour, and are produced in much larger Bunches. It is very common to have upward

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of twenty of these Flowers open in one Bunch, and a Number to succeed these as they decay, so that the Bunches have continued in Beauty upward of two Months; during which time they make a most beautiful Appearance in the Stove, and have a very agreeable Flavour.

The third Sort grows plentifully at *Campechy*, from whence the late Dr. *Houfoun* sent the Seeds. He also observed some Plants of this Kind at *Jamaica*. The sixth Sort is also pretty common in both those Places. These are not near so beautiful as the two former Sorts, their Flowers being smaller, and produc'd in lesser Bunches, and are moreover of shorter Duration. But for the Beauty of their Stems and Leaves, and for the sake of Variety, they deserve room in every curious Collection of Plants.

The fourth and fifth Sorts were discover'd by Dr. *Houfoun*, growing in great Plenty near *Carthagena* in the *Spanish West-Indies*, from whence he sent their Seeds to *England*. The fourth Sort produces small white Flowers, resembling those of the third; so is less valuable than the two first. The fifth Sort produces as large Flowers as the first; but they are of a pale-red Colour, and smell very sweet. The Leaves of this Sort are sometimes ten Inches, or a Foot, in Length, and about three Inches over in their broadest Part. These are not near so thick, or full of Juice, as those of the other Sorts: nor are they so deeply veined; but being of a bright shining-green Colour, they make an agreeable Variety amongst other tender Exotic Plants in the Stove.

All these Plants may be propagated by Seeds, which should be sown in Pots filled with light rich Earth, and plunged into an Hot-bed of

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Tanners Bark; and when the Plants are come up about two Inches high, they should be transplanted into separate small Pots filled with light sandy Earth, and plunged into the Hot-bed again; observing to shade them from the Heat of the Sun in the Middle of the Day, until they have taken Root: but they must not have much Water; for as all the Sorts are very succulent, being full of a milky Juice, somewhat like the Euphorbiums, Moisture will cause them to rot. In hot Weather the Plants should have a pretty large Share of fresh Air admitted to them, by raising the Glasses of the Hot-bed every Day, in proportion to the Warmth of the Season. Toward *Michaelmas*, when the Nights begin to be cold, the Plants should be removed into the Stove, and plunged into the Bark-bed; where they must remain during the Winter. As these Plants all cast their Leaves in the Middle of Winter, and continue destitute of them till about the Beginning of *May*, so, during that time, they should be water'd very sparingly; because they are in more Danger of rotting, while they are in a less active State, by too much Moisture, than when they are furnish'd with Leaves, through which the Moisture is more freely perspired.

All these Sorts are too tender to thrive in the open Air of this Country, in the Summer-season; therefore should be constantly preserved in the Stove, where, in warm Weather, they must have a large Share of free Air; but in cold Weather they must be kept very warm. While they are young, it will be proper to continue them in the Bark-bed; but when they have obtained Strength, they may be placed in the dry Stove, where they will thrive very well, provided

provided they are kept in a moderate Temperature of Heat, and have not too much Water.

These Plants may also be propagated by Cuttings, which should be taken from the old Plants a Month before they are planted; during which time, they should be laid on the Flues in the Stove, that the Part which joined to the old Plant may be thoroughly healed, otherwise they will rot. These Cuttings should be planted in small Pots filled with light sandy Earth, and plunged into a moderate Hot-bed of Tanners Bark; observing to shade them in the Heat of the Day from the Sun, and refresh them every third or fourth Day with Water; but it must be given to them sparingly each time. If the Cuttings succeed, they will have taken Root in about two Months; when they should have a larger Share of Air, to harden them by degrees to bear the Sun and Air; and afterward may be treated as the old Plants.

The milky Juice of these Plants is very caustic, and reckon'd very poisonous. In cutting off any of the Branches of the Plants, if the Knife be not immediately clean'd, the Juice will corrode it, and turn the Blade almost black in a very little time, so as not to be cleaned off again; and if dropped on Linen, will cause it to wash in Holes, equal to *Aqua fortis*.

POINCIANA, *Barbados Flower-fence*, or *Spanish Carnations*.

The Characters are;

The Flower consists of five Leaves, which are plac'd in a circular Order; in the Centre of which arise ten crooked Stamina: the Pointal, which arises from a quinquefid Flower-cup, becomes a long, broad, flat Pod, opening into two Parts, and fill'd with broad, flat, roundish Seeds, each of which is lodg'd in a separate Cell,

which are divided by a thin Partition.

The Species are;

1. POINCIANA *flore pulcherrimo*. Tourn. *Barbados Flower-fence*, with a fair Flower.

2. POINCIANA *flore luteo*. Houst. *Barbados Flower-fence*, with a yellow Flower.

3. POINCIANA *flore rubente*. Houst. *Flower-fence* with a redish Flower.

4. POINCIANA *spinosa, vulgo Tara*. Feuil. *Prickly Flower-fence*, commonly called *Tara*.

The first Sort is very common in the *Caribbee Islands*, where it is planted for a Fence to divide Fields; and is greatly esteem'd for the Beauty of its Flowers, which are produced on long Spikes in vast Quantities. The Leaves of this Plant are also us'd instead of *Sena*, to purge withal.

This was carry'd from *Cape Verd Islands* to *Barbados*, as is related by *Ligon*, and hath since been dispersed thro' the other Islands. It grows in those Countries to be ten or twelve Feet high, and the Stem is often as large as the Small of a Man's Leg, and the Wood is very hard; from whence it hath obtain'd the Name of *Ebony* in some Places.

The Seeds of this Plant are annually brought over in plenty from the *West-Indies*, which, if sown upon an Hot-bed, will rise easily: and when the Plants are come up, they should be transplanted into small Pots, and plung'd into an Hot-bed of Tanners Bark, observing to shade them until they have taken Root; after which you must give them Air in proportion to the Warmth of the Season, and they must be frequently refresh'd with Water. When the Plants have fill'd the Pots with their Roots, they should be taken out, and plac'd into larger ones, that they may have

have room to grow. If Care be taken to water and shift them as often as is necessary, they will grow to be three Feet high the first Season. At *Michaelmas* the Pots should be plung'd into a fresh Hot-bed of Tan-ners Bark, in the Stove; which should be kept to the Anana's Heat, mark'd on the Botanical Thermometers, and frequently refresh'd with Water; but you must never give them large Quantities, which is very injurious to these Plants at that Season. The Earth which these Plants should be planted in, must be fresh, light, and sandy (but not over-rich); in which they will stand the Winter better than if planted in a stronger Soil.

With this Management I have rais'd several Plants to be eighteen Feet high; some of which I have preserv'd five or six Years, which have produc'd Flowers in the Depth of Winter, when they made a fine Appearance in the Stove.

The second and third Sorts were discover'd by Dr. *William Houstoun* at *Campechy*, where he found them growing in plenty. These do not differ from the first in the outward Face of the Plants, but only in the Colour of their Flowers; one of these having yellow, and the other red Flowers; whereas those of the first are red and yellow variegated.

The fourth Sort was discover'd by *Pere Feuillée*, growing plentifully in the Vallies of *Lima*. The Flowers of this Kind are smaller than those of the other Sorts, and are of a greenish-yellow Colour, so that they are not near so beautiful. The Seed-pods of this Sort are used by the Dyers in the *Spanish West-Indies*, for dyeing of Black; and they are also used for making of Ink: the Infusion of these Pods with Galls affords the most beautiful black Ink in the World.

These Sorts are propagated by Seeds, in the same manner as the first; and the Plants must be treated in the same way, being all of them very tender Plants: and although they are some Years before they produce their Flowers, yet the regular Beauty of their branching winged Leaves renders them worthy of a Place in every good Stove: and when they flower, they are the greatest Ornaments in a Collection of rare Plants.

POKE VIRGINIAN. *Vide Phytolacca.*

POLEMONIUM, Greek Valerian, or Jacob's Ladder.

The Characters are;

The Flower consists of one Leaf, which is deeply divided into five Parts, and is wheel-shap'd: the Pointal, which rises from the Flower-cup, afterward becomes a roundish Fruit, divided into three Cells, which are fill'd with oblong Seeds: to which should be added, The Leaves are pinnated.

The Species are;

1. POLEMONIUM *vulgare cœruleum*. Tourn. Greek Valerian, with a blue Flower.

2. POLEMONIUM *vulgare album*. Tourn. Greek Valerian, with a white Flower.

3. POLEMONIUM *vulgare, flore variegato*. Tourn. Greek Valerian, with a strip'd Flower.

4. POLEMONIUM *vulgare, foliis eleganter variegatis*. Boerb. Ind. Greek Valerian, with beautiful striped Leaves.

The two first Species are very common in many *English* Gardens, where they are cultivated for the Beauty of their Flowers. They have also been found wild in *Carleton Beck*, and about *Malham Cove* near *Craven*. The Sort with variegated Flowers,

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Flowers, as also that with strip'd Leaves, are Varieties which have been obtain'd from the former.

These Plants are easily propagated by sowing their Seeds in the Spring upon a Bed of light Earth; and when they are come up pretty strong, they should be prick'd out into another Bed of the same light Earth, about three Inches asunder; observing to shade and water them until they have taken Root, after which they will require no farther Care but to keep them clear from Weeds, until *Michaelmas*; at which time they must be transplanted into the Borders of the Flower-garden, where, being intermix'd with different Sorts of Flowers, they will make a beautiful Appearance. These produce their Flowers in *May* and *June*, and their Seeds ripen in *August*.

The variegated Kinds are preserved by parting of their Roots; because the Plants raised from Seeds would be subject to degenerate, and become plain. The best time to part them is about *Michaelmas*, that they may take good Root before the cold Weather prevents them. These should have a fresh light Soil; but if it be too rich, their Roots will rot in Winter, and the Stripes will go off.

POLYANTHES, The Tuberose.

The Characters are;

The Flower hath no Empalement, and is funnel-shaped, of one Leaf, having a long curved Tube, and spread open at the Top, where it is divided into six Parts: in the Bottom of the Flower is situated the roundish Pointal, attended by six thick Stamina, which are obtuse: the Pointal afterward becomes a roundish triangular Seed-vessel, having three Cells, which are full of roundish Seeds.

The Species are;

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1. POLYANTHES *floribus alternis*. *Lin. Hort. Cliff.* The Tuberose.

2. POLYANTHES *floribus alternis. flore pleno.* The double Tuberose.

3. POLYANTHES *floribus umbellatis. Lin. Vir.* The African blue umbellated Hyacinth.

The first Sort has been long cultivated in the *English* Gardens for the exceeding Beauty and Fragrancy of its Flowers: the Roots of this Sort are annually brought from *Genoa*, by the Persons who import Orange-trees: for as these Roots are too tender to thrive in the full Ground in *England*, there are few Persons who care to take the Trouble of nursing up their Off-sets, till they become blowing Roots; because it will be two or three Years before they arrive to a proper Size for producing Flowers: and as they must be protected from the Frost in Winter, the Trouble and Expence of Covers is greater than the Roots are worth; for they are generally sold pretty reasonable, by those who import them from *Italy*.

The second Sort is a Variety of the first, which was obtained from the Seed by Monsieur *Le Cour*, of *Leyden* in *Holland*, who for many Years was so tenacious of parting with any of the Roots, even after he had propagated them in such Plenty, as to have more than he could plant, as to cause them to be cut in Pieces, that he might have the Vanity to boast of being the only Person who was possessed of this Flower: but of late Years the Roots have been spread into many Parts; and as there is no other Method to propagate this, but by the Off-sets, most People who have had of this Sort are careful to multiply and increase it; which is done by planting the Off-sets upon a moderate Hot-bed, early in *March*, and

and covering the Bed in cold Weather with Mats or Straw; and in Summer they must have plenty of Water in dry Weather: in this Bed the Roots may remain till the Leaves decay in Autumn; but if there should happen any Frost before that time, the Bed should be covered to guard the Roots from the Frost, because it will destroy them if the Frost enters so low as to reach the Roots: and where there is due Care taken to screen them from Frost, and too much Wet, it will be the best Way to let the Roots remain in the Bed till the End of *November*, or the Beginning of *December*, provided hard Frosts do not set in sooner; for the less time the Roots are out of the Ground, the stronger they will be, and the sooner they will flower: when the Roots are taken up, they should be cleaned from the Earth, and laid up in dry Sand, where they may be safe from Frost and Wet; where they should remain until the Season for planting them again: this same Method should be practised by those who are desirous to cultivate the single Sort.

I shall next give Directions for the Management of those Roots, which are annually brought from *Italy*: and first, in the Choice of the Roots, those which are the largest and plumpest, if they are perfectly firm and sound, are the best; and the fewer Off-sets they have, the stronger they will flower: but the Under-part of the Roots should be particularly examined, because it is there that they first decay: after the Roots are chosen, before they are planted, the Off-sets should be taken off; for if these are left upon the Roots, they will draw away part of the Nourishment from the old Root, whereby the Flower-stems will be greatly weakened.

As these Roots commonly arrive in *England* in the Month of *February*, those who are desirous to have these early in Flower, should make a moderate Hot-bed the Beginning of *March*, which should have good rich Earth laid upon the Dung, about eight or nine Inches deep: this Bed should be covered with a Frame; and when the Bed is in a proper Temperature for Warmth, the Roots should be planted at about six Inches Distance from each other every Way. The upper-Part of the Root should not be buried more than one Inch in the Ground: when the Roots are planted, there should be but little Water given them, until they shoot above-ground; for too much Wet will rot them, when they are in an unactive State: but afterward they will require plenty of Water, especially when the Season is warm: when the Flower-stems begin to appear, the Bed should have a large Share of Air given to it; otherwise the Stalks will draw up weak, and produce but few Flowers: for the more Air these Plants enjoy in good Weather, the stronger they will grow, and produce a greater Number of Flowers: therefore, toward the Beginning of *May*, the Frame may be quite taken off the Bed, and Hoops fastened over it, to support a Covering of Mats, which need not be laid over, but in the Night, or in very cold Weather; so that by enjoying the free open Air, their Stems will be large: and if they are well watered in dry Weather, their Flowers will be large, and a great Number on each Stem.

This first Planting will require more Care than those which are design'd to come after them; for in order to have a Succession of these Flowers, the Roots should be planted at three different times; *viz.* the first

first the Beginning of *March*; the second the Beginning of *April*; and the third at the End of that Month, or the Beginning of *May*: but these Beds will require a much less Quantity of Dung than the first, especially that Bed which is the last made; for if there is but Warmth enough to put the Roots in Motion, it is as much as will be required: and this last Bed will need no Covering; for many times those Roots which are planting in the full Ground at this Season, will produce strong Flowers in Autumn: but in order to secure their Flowering, it is always the best way to plant them on a gentle Hot-bed. As to the second Bed, that should be arched over with Hoops, and covered with Mats every Night, and in bad Weather; otherwise the late Frosts, which frequently happen in *May*, will pinch them.

These Plants may remain in the Beds until the Flowers are near expanded; at which time they may be carefully taken up, preserving the Earth to their Roots, and planted in Pots, and then placed in the Shade for four or five Days: after which time the Pots may be removed into Halls, or other Apartments, where they will continue in Beauty a long time; and their fragrant Odour will perfume the Air of the Rooms where they are placed; and by having a Succession of them, they may be continued from *Midsummer* to the End of *October*: but as the Stems of these Plants advance, there should be some Sticks put down by each Root; to which the Stems should be fastened, to prevent their being broken by the Wind.

It is a common Practice with many People, to plant these Roots in Pots, and plunge the Pots into an Hot-bed: but there is much more Trouble in raising them in this Method,

than in that before directed; for if the Roots are not planted in very small Pots, there will be a Necessity of making the Beds much larger, in order to contain a Quantity of the Roots: and if they are first planted in small Pots, they should be shaken out of these into Pots of a larger Size, when they begin to shoot out their Flower-stems; otherwise the Stalks will be weak, and produce but few Flowers: therefore I prefer the other Method, as there is no Danger in removing the Roots, if it is done with Care.

When the Roots are strong, and properly managed, the Stems will rise three or four Feet high; and each Stem will produce twenty Flowers or more: and in this the great Beauty of these Flowers consists; for when there are but a few Flowers upon the Stalks, they will soon fade away, and must be frequently renewed; for the Flowers are produced in Spikes coming out alternately upon the Stalk, the lower Flowers opening first; and as these decay, those above them open; so that in proportion to the Number of Flowers upon each Stalk, they continue in Beauty a longer or shorter time.

The Sort with double Flowers will require a little more Care, in order to have the Flowers fair; but this Care is chiefly at the time of Blowing; for the Flowers of this Sort will not open, if they are exposed to the open Air; therefore when the Flowers are completely formed, and near opening, the Pots should be placed in an airy Glass-case, or a Shelter of Glasses should be prepared for them, that the Dews and Rains may not fall upon them; for that will cause the Flowers to rot away before they open; and the Heat of the Sun drawn thro' the Glasses will cause their Flowers to expand

expand very fair. With this Management, I have had this Sort with very double Flowers extremely fair, and upward of twenty upon one Stem; so that they have made a beautiful Appearance: but where this has not been practised, I have rarely seen one of them in any Beauty.

The third Sort is a Native of the *Cape of Good Hope*, from whence the Seeds were brought to some curious Gardens in *Holland*, where the Plants were raised and multiplied, and have since been dispersed into most of the curious Gardens in *Europe*: this Plant is well figured and described by Dr. *Commelin*, in the *Hortus Amstelodamensis*, by the Title of *Hyacinthus Africanus tuberosus, flore cæruleo umbellato*: but Dr. *Linnaeus* has removed this from the Genus of *Hyacinthus*, because the Flowers of these Plants have an incurved Tube, and the *Apices* are inserted in the upper Part; whereas the Flower of the *Hyacinth* is bell-shaped, and has three *Nectariums*, which are joined in the Centre.

The Roots of this Plant are composed of many thick fleshy Tubers, somewhat in Shape like those of the *Ranunculus*, but are much larger: the Leaves are long and flat, resembling those of *Daffodil*; but are of a dark-green Colour. These remain green all the Year; but in Summer they are not so strong and vigorous as in Winter, which is the Season of their Growth: the Flowers are produced in an Umbel, upon the Top of a naked Stalk, which is about a Foot and an half high: these Flowers are shaped somewhat like those of the *Hyacinth*, being large, and of a fine blue Colour: the Season of this Plant's flowering, is about *Michaelmas*: but when the Plants are strong, the Flowers will be in greater

Quantity; so that they will continue in Beauty near two Months: and this being at a Season when there is a Scarcity of Flowers, renders this the more valuable. Indeed, there are few Plants which are preserved in the Green-house, that merit a Place more than this Plant; for where they are in plenty, they may be so managed, as to have a Succession of them in Flower upward of three Months; and this in the Winter-season, when they are placed in the Green-house.

This Plant is propagated by parting of the Roots; for the Seeds are seldom perfected in *England*: the best time for parting the Roots is about the End of *May*; at which time the Leaves are not in a growing State: but in the parting of the Roots, they must not be divided too small, especially if there is regard paid to their Flowering; for the smaller the Roots are, the weaker will be the Flowers; so that by increasing the Number of Roots too fast, they will not produce so many Flowers as they otherwise would do: these Roots must be planted in Pots filled with rich fresh Earth, and should be placed in the Summer-season in the open Air, in a sheltered Situation, and not too much watered during that time; for as they are then in the most unactive State, much Wet often rots their Roots. In Autumn, when the Nights begin to be cold, the Pots should be removed into the Green-house, and placed near the Windows, where they may have a large Share of Air; for if they are much crowded by other Plants, whereby the Air is excluded from them, the Flowers are subject to Mouldiness, which will soon spoil their Beauty. During the Winter-season the Plants must be frequently refreshed with Water, especially while they

they continue in Flower ; but they must not have it in too great Quantities ; for as the Roots are thick and fleshy, much Moisture will cause them to rot: these Plants do not require any artificial Heat in Winter ; so may be preserved in a good Green-house ; or if they are placed in a dry airy Glass-case with Ficoides, and other hardy succulent Plants of the same Country, they will thrive and flower extremely well : and with this Management I have had the Seed-vessels formed, which have grown to a considerable Size ; but the long cold Nights, which then came on, caused the Air to be very damp, which occasioned a Mouldiness, that destroyed the Seeds : but I believe by removing the Plants into a moderate Stove, as soon as the Flowers are over, this might be prevented, and good Seeds may be obtained.

POLIUM, Poley-mountain.

The Characters are ;

It hath a labiated Flower, consisting of one Leaf, whose Stamina supply the Place of the Crest : the Beard, or Under-lip, is divided into five Segments, as the Germander : out of the Flower-cup rises the Pointal, attended, as it were, by four Embryoes, which afterward become so many Seeds, shut in the Flower-cup : to these Marks must be added, That the Flowers are collected into an Head upon the Tops of the Stalks and Branches.

The Species are ;

1. POLIUM *montanum luteum*. C. B. P. Yellow Mountain-poley.
2. POLIUM *montanum album*, C. B. P. White Poley-mountain.
3. POLIUM *lavendulae folio*. C. B. P. Poley-mountain with a narrower Lavender-leaf.
4. POLIUM *lavendulae folio angustiori*. C. B. P. Poley-mountain with a narrower Lavender-leaf.

5. POLIUM *Pyrenaicum supinum, hederæ terrestris folio*. Tourn. Creeping Pyrenean Poley-mountain, with a Ground-ivy-leaf.

6. POLIUM *maritimum erectum Monspeliacum*. C. B. P. Upright Poley-mountain of Montpellier.

7. POLIUM *montanum luteum, serratis angustioribus incanis foliis*. Barrel. Yellow Poley-mountain, with narrow hoary ferrated Leaves.

8. POLIUM *montanum alterum, foliis angustioribus, capitulis longioribus*. C. B. P. Another Mountain-poley, with narrower Leaves, and longer Heads.

9. POLIUM *montanum repens*. C. B. P. Creeping Mountain-poley.

10. POLIUM *maritimum supinum, Venetum*. C. B. P. Creeping maritime Venetian Mountain-poley.

11. POLIUM *Hispanicum, chamaedrys folio, flore purpurascens*. Inst. R. H. Spanish Mountain-poley, with a Germander-leaf, and a purplish Flower.

12. POLIUM *Lusitanicum supinum minus incanum, caulibus purpurascens, flore albo*. Inst. R. H. Creeping less hoary Portugal Mountain-poley, with purplish Stalks, and a white Flower.

13. POLIUM *Hispanicum latifolium, capitulo breviori, purpurascens flore*. Inst. R. H. Broad-leav'd Spanish Mountain-poley, with a shorter Head, and a purplish Flower.

14. POLIUM *Hispanicum maximum album*. Inst. R. H. The largest white Spanish Mountain-poley.

15. POLIUM *Hispanicum maximum luteum*. Inst. R. H. The greatest yellow Spanish Mountain-poley.

16. POLIUM *Hispanicum maritimum frutescens, rosmarini folio, flore rubro*. Inst. R. H. Shrubby maritime Spanish Mountain-poley, with a Rosmary-leaf, and a red Flower.

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17. *POLIUM Hispanicum supinum, flore flavescente.* Inst. R. H. Creeping Spanish Poley-mountain, with a yellowish Flower.

18. *POLIUM Hispanicum, linariae foliis brevioribus, flore albo.* Inst. R. H. Spanish Poley-mountain, with shorter Toadflax-leaves, and a white Flower.

19. *POLIUM montanum gnaphaloides incisum, flore rubro, & supinum.* Barr. Icon. Creeping Poley-mountain, resembling Cudweed, with a red Flower.

20. *POLIUM Hispanicum luteum, majoranae folio.* Inst. R. H. Yellow Spanish Poley-mountain, with a Marjoram-leaf.

21. *POLIUM Hispanicum, serpylli folio, purpurascente flore.* Inst. R. H. Spanish Poley-mountain, with a Mother-of-thyme-leaf, and a purplish Flower.

22. *POLIUM Hispanicum, thymi folio, purpurascente coma.* Inst. R. H. Spanish Poley-mountain, with a Thyme-leaf, and purplish Top.

23. *POLIUM Creticum maritimum humifusum.* Tourn. Cor. Trailing maritime Poley-mountain of Crete.

24. *POLIUM Smyrnaeum, scordii folio.* Tourn. Cor. Smyrna Poley-mountain, with a Water-germander-leaf.

These are all of them perennial Plants, except the third and fourth Sorts: these two seldom continue longer than two or three Years, so are propagated by Seeds; but the others, which are abiding Plants, are propagated by Cuttings. These Plants grow wild in the South of France, in Spain, Portugal, and some in the Levant; from whence their Seeds have been obtained by those Persons who delight in Botanical Studies: some of these Sorts grow upright to the Height of two Feet; but the greatest Part of them trail

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upon the Ground, and have woody Branches: the chief Beauty of these Plants consists in their hoary Leaves; for the Flowers are small, and have very little Beauty in them; so the Plants are seldom preserved in Gardens for their Beauty: however, some of the shrubby Kinds may be admitted into the Pleasure-garden; where, if they are planted on a dry lean Soil, they will abide many Years, and add to the Variety.

These Plants may be disposed in a Garden, so as to afford Pleasure, by mixing them with Marum, Mastich, and several other aromatic Plants, upon the sloping Sides of Banks, which are exposed to the Sun; or upon little Hillocks raised in a sheltered Situation; where, by the Diversity of their hoary Branches, being of various Shapes, they will make a pretty Appearance: and in such Places they will resist the Cold much better than when they are planted in a good Soil; for if they grow freely in Summer, their Shoots will be replete with Moisture, and the Frost will be much more likely to destroy these than it will those whose Shoots are short, dry, and hard: and this holds thro' most of the aromatic Plants; for Sage, Rosemary, Lavender, &c. which have been growing out of dry Walls, tho' greatly exposed to all Winds, have resisted the Cold of the severest Winters, when most of the Plants which were growing in Gardens were destroyed.

They are propagated in England, where they seldom produce Seeds, by Cuttings or Slips, which should be planted the Beginning of April, just before they are about to shoot, upon a Border exposed to the East: and if the Season proves dry, they must be watered and shaded until they have taken Root; and afterward they

they will require no other Care but to keep them clean from Weeds; and at *Michaelmas* the Plants should be removed where they are design'd to remain; but it will be proper to put a Plant of each Sort in Pots, that they may be sheltered in Winter, to preserve the Kinds.

The second and sixth Sorts are sometimes used in Medicine.

POLYANTHUS. *Vide Primula.*

POLYGALA, Milkwort.

The Characters are;

It hath a Flower consisting of one Leaf, of an anomalous Figure, perforated behind, but divided into two Lips before: the uppermost Lip is divided into two Parts; but the under one is curiously fringed: out of the lower Part of the Flower rises the Pointal, which afterward becomes a broad Fruit, divided into two Cells, which contain oblong Seeds: the Fruit is generally inclos'd in the Flower-cup, which is compos'd of five Leaves; viz. three small ones, and two larger, which afterward embrace the Fruit like Wings.

The Species are;

1. POLYGALA *major cærulea. Tabern.* Greater blue Milkwort.

2. POLYGALA *major alba. Tabern.* Greater white Milkwort.

3. POLYGALA *vulgaris. C. B. P.* Common Milkwort, with a blue Flower.

4. POLYGALA *alba. Tabern.* White common Milkwort.

5. POLYGALA *montana minima myrtifolia. Inst. R. H.* The least mountain Milkwort, with a Myrtle-leaf.

6. POLYGALA *Cretica vulgari similis, flore albido longiore. Tourn. Cor.* Milkwort of Crete, like the common Sort, with a longer whitish Flower.

7. POLYGALA *Orientalis supina*

myrtifolia, flore cæruleo. Tourn. Cor. Low Eastern Milkwort, with a Myrtle-leaf, and a blue Flower.

8. POLYGALA *Orientalis linifolia, flore magno albo. Tourn. Cor.* Eastern Milkwort, with a Flax-leaf, and a large white Flower.

9. POLYGALA *Orientalis linifolia, flore magno purpureo. Tourn. Cor.* Eastern Milkwort, with a Flax-leaf, and a large purple Flower.

10. POLYGALA *Lusitanica frutescens, magno flore, foliis minimis. Inst. R. H.* Shrubby Portugal Milkwort, with a large Flower, and very small Leaves.

11. POLYGALA *Africana frutescens angustifolia major. Oldenl.* Greater shrubby African Milkwort, with a narrow Leaf.

12. POLYGALA *Africana, lini folio, magno flore. Oldenl.* African Milkwort, with a Flax-leaf, and a large Flower.

13. POLYGALA *Virginiana, foliis oblongis, floribus in thyrsis candidis, radice alexipharmica.* Milkwort of Virginia, with oblong Leaves, and white Flowers, growing in a loose Spike, whose Root is alexipharmac; commonly called the Senegaw Rattle-snake-root.

14. POLYGALA *cærulea Americana, angustis & densioribus foliis, vulgo Clin-clin. Feuillée.* Blue American Milkwort, with narrow Leaves; commonly called by the Indians Clin-clin.

15. POLYGALA *rubra Virginiana, spica parva compacta. Banist.* Red Virginian Milkwort, with a small compact Spike.

16. POLYGALA *spicata rubra major, foliis & caulibus cærulescentibus. Banist.* Greater red spiked Milkwort, with bluish Leaves and Stalks.

17. POLYGALA *f. flos ambarvalis Virginiana, floribus luteis in caput oblongum*

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longum congestis. Banist. Virginian
Milkwort, with yellow Flowers collected in an oblong Head.

18. *POLYGALA quadrifolia f. cruciata, floribus ex viridi rubentibus, in globum compactis. Banist.* Four-leav'd Milkwort, with redish-green Flowers, growing in a compact Globe.

19. *POLYGALA quadrifolia minor Virginiana, spica parva rubenti. Banist.* Smaller four leav'd *Virginian* Milkwort, with a small redish Spike.

20. *POLYGALA Mariana; angustiore folio, flore purpureo. Pluk. Mantif.* Narrow-leav'd Milkwort of *Maryland*, with a purple Flower.

21. *POLYGALA Mariana quadrifolia minor, spica parva albicante. Pluk. Mantif.* Smaller four-leav'd Milkwort of *Maryland*, with a small whitish Spike.

22. *POLYGALA Africana frutescens, folio buxi, flore maximo. Oldenl.* Shrubby *African* Milkwort, with a Box-leaf, and a very large Flower.

The four first Species are found wild in moist Meadows in divers Parts of *England*, and are never preserved in Gardens, except for the sake of Variety: however, I thought proper to insert them in this Place, to introduce the other Sorts; some of which are beautiful Plants, and are worthy to be preserved in all curious Collections of rare Plants.

The fifth, sixth, seventh, and eighth Sorts are also very humble Plants, which grow wild in *Spain*, *Italy*, and the South of *France*, and are seldom introduced in Gardens; for it is very difficult to get any of these Plants to grow, when they are transplanted from Fields to Gardens; for they delight to grow amongst the Grass: so that when it is clear'd from about them, they seldom thrive.

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The sixth, seventh, eighth, and ninth Sorts were discovered by Dr. *Tournefort*, in the *Levant*: these are also low Plants, which grow in the same manner as the former; therefore are not easily cultivated in Gardens: the only Method to get these to grow in a Garden, is, to sow their Seeds in Autumn, soon after they are ripe, in a shady Situation, and a moist Soil; where the Plants will come up the following Spring, and produce Flowers; but they seldom continue long after.

The tenth, eleventh, and twelfth Sorts are shrubby Plants, which are preserved in some curious Gardens for Variety. These may be also propagated by Seeds, which should be sown on a moderate Hot-bed in the Spring; and when the Plants are come up, they should be transplanted into separate Pots filled with fresh light Earth, and then plunged into the Hot-bed again, observing to shade them from the Sun until they have taken Root; after which time they should have a large Share of fresh Air in warm Weather, and must be frequently watered. About the middle of *May* these Plants should be inured to bear the open Air by degrees; and in *June* they may be placed abroad in a sheltered Situation, where they may remain during the Summer-season; and in Autumn they must be removed into the Green-house, and managed as hath been directed for Myrtles and Oleanders. These Plants continue a long time in Flower; so are worthy of a Place in every curious Garden, for the sake of Variety.

The fourteenth Sort is a Native of the Mountains in the Kingdom of *Chily*, in the *Spanish West-Indies*, where it is used by the *Indians* to cure Pleurisies, and all Complaints of the Side. This Sort is of low

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Growth, seldom rising higher than the common Sort; but is too tender to live in the open Air in *England*; so the Plants should be planted in Pots, and preserved in the Green-house in Winter. This may be propagated by Seeds, as the two former Sorts.

The next seven Sorts, as also the thirteenth, are all of them Natives of *Virginia*, *Maryland*, *New-England*, and several other Places in the North of *America*; so are hardy enough to live in the open Air in *England*, provided they are planted in a warm Situation, and on a light Soil. These are very pretty Plants, and require very little Trouble to cultivate them; for after they are come up from Seeds, the only Care they require, is, to keep them clear from Weeds, and in very dry Weather to water them while they are young; for when they have obtained Strength, they will not be in much Danger of suffering by Drought; for the Roots run pretty deep into the Ground, so will find Nourishment to support them.

The Root of the thirteenth Sort hath been long used by the *Senegaw Indians* to cure the Bite of the Rattle-snake; which, if taken in time, is an infallible Remedy. And of late Years it hath been used by the Inhabitants of *Virginia* in many Disorders, which are occasioned by a thick fizy Blood; so that the Root of this Plant, when its Virtues are fully known, may become one of the most useful Medicines yet discovered. The fourteenth Sort, by the Account which *Pere Feuillée* gives of it, partakes of the same Qualities with this, tho' the *Indians* use it differently; for he says they make a Decoction of the Plant, which they drink to cure the Pain of the Side; whereas the *Senegaw Indians* use the

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Root of the thirteenth Sort, which they powder, and generally carry about them, when they travel in the Woods, lest they should be bit by the Rattle-snake; and whenever this happens, they take a Quantity of the Powder inwardly, and apply some of it to the Part bitten; which is a sure Remedy.

The twenty-second Sort is propagated by Seeds, which should be sown in Pots of light Earth, soon after it is ripe, and sheltered in Winter; and in the Spring the Pots should be placed upon a moderate Hot-bed: and when the Plants are come up, they should be prick'd into small Pots fill'd with light rich Earth, and plunged into another Hot-bed, where they should be shaded until they have taken Root, and often refreshed with Water; after which they must have Air given them in proportion to the Warmth of the Season; and in *July* they may be removed into the open Air, placing them in a warm Situation, where they may be sheltered from strong Winds; and in dry Weather they must be often refreshed with Water: in this Place they may remain until *October*, when the Nights begin to be frosty; then you should remove them into the Green-house, placing them where they may have the Advantage of the free Air, when the Weather is favourable enough to admit of the Glass being open'd; for they only require to be protected from Frost. During the Winter-season they should often be refreshed with Water; but it should not be given to them in large Quantities, which will injure their Roots. In Summer they may be exposed with Myrtles, Geraniums, &c. in a Situation where they are defended from strong Winds; and as their Roots increase, the Size of their
Pots

Pots should be enlarg'd; but you must be very cautious not to over-pot them, which is injurious to all Sorts of Exotic Plants.

The Earth in which these Plants are set, should be rich, fresh, and light, in which they will thrive exceedingly, and continue in Flower most Part of the Year, which renders it very valuable; and if the Season proves favourable, the Seeds will ripen very well: but you must be careful to gather them when ripe, otherwise they will drop off, and be lost. The Seeds of this Plant will sometimes remain above a Year in the Ground, so that the Earth in the Pots should not be disturbed when the Plants do not come up the first Season.

POLYGONATUM, *Solomon's Seal.*

The Characters are;

The Flower consists of one Leaf, is tubulous, and expands at the Top in Shape of a Bell, and is divided into several Segments: the Ovary, which is situated in the Centre of the Flower, becomes a soft globular Fruit, containing roundish Seeds

The Species are;

1. **POLYGONATUM latifolium vulgare.** C. B. P. Common broad-leav'd *Solomon's Seal.*

2. **POLYGONATUM latifolium vulgare, caulibus rubentibus.** H. L. Common broad-leav'd *Solomon's Seal,* with red Stalks.

3. **POLYGONATUM latifolium minus, flore majore.** C. B. P. Lesser broad-leav'd *Solomon's Seal,* with a larger Flower.

4. **POLYGONATUM latifolium, flore duplici odore.** H. R. Par. Broad-leav'd *Solomon's Seal,* with a double sweet-smelling Flower.

5. **POLYGONATUM latifolium maximum.** C. B. P. The greatest broad-leav'd *Solomon's Seal.*

6. **POLYGONATUM latifolium, hel-lebori albi foliis.** C. B. P. Broad-leav'd *Solomon's Seal,* with Leaves like the white Hellebore.

7. **POLYGONATUM latifolium, flore majore odore.** C. B. P. Broad-leav'd *Solomon's Seal,* with a large sweet Flower.

8. **POLYGONATUM Orientale latifolium, flore parvo.** Tourn. Cor. Eastern broad-leav'd *Solomon's Seal,* with a small Flower.

9. **POLYGONATUM angustifolium non ramosum.** C. B. P. Narrow-leav'd unbranched *Solomon's Seal.*

10. **POLYGONATUM angustifolium ramosum.** C. B. P. Narrow-leav'd branching *Solomon's Seal.*

11. **POLYGONATUM Americanum scandens altissimum, foliis tamni.** Plum. The tallest climbing *American Solomon's Seal.*

These Plants are easily propagated by parting of their Roots in the Spring, before they begin to shoot, observing always to preserve a Bud to each Off-set: they should be planted in a fresh light Earth, where they will thrive exceedingly; but if it be over-rich, it will destroy their Roots. The first Sort is the most common in England, and is what the College has directed for medicinal Use.

The fifth and sixth Sorts grow very tall, provided they are planted in a pretty good Soil. In a moist Season it is common for these to be upward of three Feet high; whereas the ordinary Sort seldom rises above half that Height. The Leaves of these Sorts are also very large, so that they make an handsome Appearance in the Borders of large Gardens.

The seventh Sort hath broader Leaves than the common Sort; but doth not grow much higher. The Flowers of this Sort being larger, and having an agreeable Scent, render

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it worthy of a Place in large Gardens.

The eighth Sort was discovered by Dr. Tournefort in the *Lewant*; but is not common in *Europe*: this hath a broader Leaf than the common Sort, and the Flower is much smaller. It is preserved in some curious Botanic Gardens, for the sake of Variety.

The ninth and tenth Sorts are very different from either of the former: these have four or five Leaves, produced at each Joint, which are much longer and narrower than those of the common Sort; so that they make a very different Appearance; therefore should be allowed a Place in large Gardens, for the sake of Variety.

All these Sorts are as hardy as the common *Solomon's Seal*, and may be propagated by parting of their Roots, in the same manner as is directed for the common Sort.

The eleventh Sort is a Native of the warmest Parts of *America*, where it grows in the Woods, and climbs on whatever Trees grow near it; by the Help of which it rises to a great Height. This produces its Flowers in long Bunches, somewhat like the black Briony.

The Seeds of this Plant were sent from *Campechy* by Mr. Robert Millar, Surgeon. This Plant must be preserved in Stoves, otherwise it will not live thro' the Winter in this Country: it may be propagated by Seeds, which should be sown on an Hot-bed early in the Spring: and when the Plants are come up, they should be treated in the same manner as hath been directed for *Dioscoria*: with which Management this Plant will thrive, and produce Flowers in this Country.

POLYPODIUM, Polypody.

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The Characters are;

It is a capillary Plant, with oblong jagged Leaves, having a middle Rib, which joins them to the Stalks running thro' each Division.

The Species are;

1. POLYPODIUM *vulgare*. C.B.P. Common Polypody.

2. POLYPODIUM *majus, serrato folio*. Barr. Icon. Greater Polypody, with a serrated Leaf.

3. POLYPODIUM *Cambro-Britanicum, pinnulis ad margines lacinia-tis*. Raii Syn. Welsh Polypody, with laciniated Leaves.

There are several other Species of this Plant, which are Natives of *America*; some of which are preserved in some curious Botanic Gardens for Variety: but as they are rarely cultivated in other Gardens, it is not worth while to enumerate them in this Place.

The first Sort is that which is used in Medicine, and is found growing upon old Walls, and shady Banks, in divers Parts of *England*. The second seems to be only a Variety of the first, which differs therefrom in being larger, and having serrated Leaves. The third Sort was brought from *Wales*, where it grows in great Plenty, and is the most beautiful of all the Sorts. These Plants may be propagated by parting of their Roots in the Spring before they shoot, and should be planted in a very poor moist Soil, under the Shade of a Wall; for if they are expos'd to the Sun, they will not thrive: they chiefly delight to grow out of the Joints of Walls, and old Buildings; but are commonly found exposed to the North.

POMGRANATE. *Vide Puni-ca*.

POMUM ADAMI. *Vide Aurantium*.

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POPULAGO, Marsh-marigold.

The Characters are ;

The Flower consists of several Leaves, which are plac'd circularly, and expand in form of a Rose ; in the middle of which rises the Pointal, which afterward becomes a membranaceous Fruit ; in which there are several Cells, which are, for the most part, bent downward, collected into little Heads, and are full of oblong Seeds.

The Species are ;

1. POPULAGO flore majore. Tourn. Marsh-marigold with a large Flower.

2. POPULAGO flore minore. Tourn. Marsh-marigold with a smaller Flower.

3. POPULAGO flore pleno. Tourn. Marsh-marigold with a double Flower.

The two first Sorts are very common on boggy and watry Places in divers Parts of England, and are seldom cultivated in Gardens : but the third Sort, which is a Variety from the second, is preserved in Gardens for its fine double Flowers.

This Plant is propagated by parting of the Roots in Autumn, and must be planted on a moist Soil, otherwise the Flowers will not be near so fair, nor will the Plants thrive. These are very proper to place in very wet Parts of the Garden, where few other Plants will thrive ; and will afford an agreeable Variety during their Season of Flowering, which is from the Middle of April until the Latter-end of May : so that they are worthy of a Place in every curious Flower-garden.

POPULUS, The Poplar-tree.

The Characters are ;

The Leaves are broad, and, for the most part, angular : the Male Trees produce amentaceous Flowers, which have many little Leaves and Apices,

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but are barren : the Female Trees produce membranaceous Pods, which open into two Parts, containing many Seeds, which have a large Quantity of Down adhering to them, and are collected into Spikes.

The Species are ;

1. POPULUS alba, minoribus foliis. C. B. P. White Poplar, with smaller Leaves

2. POPULUS alba, majoribus foliis. C. B. P. White Poplar, with large Leaves, commonly call'd the Abele-tree.

3. POPULUS tremula. C. B. P. The trembling Poplar, or Aspen-tree.

4. POPULUS nigra. C. B. P. The black Poplar-tree, by some falsly called the Cotton-tree.

5. POPULUS alba, folio minore variegato. The white Poplar, with striped Leaves.

6. POPULUS nigra Caroliniana, folio maximo, gemmis balsamum odoratissimum fundentibus. Catseb. The Carolina black Poplar, with the largest Leaf ; from whose Buds issues a very sweet Balsam.

These Trees may be propagated either from Layers or Cuttings, which will readily take Root ; as also from Suckers, which the white Poplars send up from their Roots in great Plenty. The best time for transplanting these Suckers is in October, when their Leaves begin to decay. These may be placed in a Nursery for two or three Years, to get Strength, before they are planted out where they are design'd to remain : but if you intend to propagate them from Cuttings, it is better to defer the doing of that until February ; at which time you may plant Truncheons of four or five Feet long, thrusting them about a Foot into the Ground : these will readily take Root ; and if the Soil be moist in which they are planted, will arrive

to a considerable Bulk in a few Years.

The black Poplar is not so apt to take Root from large Truncheons ; therefore 'tis the better Method to plant Cuttings about a Foot and an half in Length, thrusting them a Foot deep into the Ground : these will take Root very freely, and may be afterward transplanted where they are to remain. This Sort will grow upon almost any Soil ; but will thrive best in moist Places.

I have planted Cuttings of this Tree, which in four Years have been bigger in the Trunk than a Man's Thigh, and near twenty Feet in Height, and this upon a very indifferent Soil ; but in a moist Soil, it is common for these Trees to shoot ten or twelve Feet in a Season : so that where a Person hath a mind to make a Shelter in a few Years, there is scarce any Tree so proper for that Purpose as this : but they should not be planted too near the Pleasure-garden, because the Down which falls from these Trees will make a prodigious Litter in the Spring.

The white Sorts, as also the Aspen-tree, likewise cause a great Litter in the Spring, when their Down falls off ; and their Roots being very apt to produce a large Quantity of Suckers, especially those Trees that came from Suckers, this renders them unfit to be planted near an House or Garden ; but when they are interspers'd with other Trees in large Plantations, they afford an agreeable Variety ; their Leaves being very white on their Under-sides, which, when blown with the Wind, are turn'd to Sight.

A considerable Advantage may be obtain'd by planting these Trees upon moist boggy Soils, where few other Trees will thrive : many such Places there are in *England*, which

do not, at present, bring in much Money to their Owners ; whereas, if they were planted with these Trees, they would, in a very few Years, over-purchase the Ground, clear of all Expence : but there are many Persons in *England*, who think nothing, except Corn, worth cultivating : or, if they plant Timber, it must be Oak, Ash, or Elm ; and if their Land be not proper for either of these, it is deem'd little worth ; whereas if the Nature of the Soil was examined, and proper Sorts of Plants adapted to it, there might be very great Advantage made of several large Tracts of Land, which at this time lie neglected.

The Wood of these Trees, especially of the Abele, is very good to lay for Floors, where it will last many Years ; and, for its exceeding Whiteness, is, by many Persons, preferr'd to Oak ; but, being of a soft Contexture, is very subject to take the Impression of Nails, &c. which renders it less proper for this Purpose : it is also very proper for Wainscoting of Rooms, being less subject to swell or shrink, than most other Sorts of Wood : but for Turnery-ware, there is no Wood equal to this for its exceeding Whiteness, so that Trays, Bowls, and many other Utensils, are made of it ; and the Bellows-makers prefer it for their Use ; as do also the Shoemakers, not only for Heels, but also for the Soles of Shoes : it is also very good to make light Carts ; and the Poles are very proper to support Vines, Hops, &c. and the Lopping will afford good Fuel, which in many Countries is much wanted.

The sixth Sort of Poplar-tree grows by the Sides of Rivers, and in other moist Places, in *South-Carolina*, where it rises to a very large Tree. The young Branches of this Tree

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Tree are commonly angular, sometimes having three, and at other times four Angles. The Leaves are much broader, and are not so pointed as those of the common black Poplar. The Buds of the Leaves are very large; and in the Spring, just before they push, there issues out of them a very sweet Balsam.

Although this Tree is a Native of a much warmer Country than *England*, yet it is hardy enough to endure the Cold of our Winters in the open Air; and may be propagated by Cuttings, in the same manner as the common black Poplar. The best time to plant these Cuttings is in the Beginning of *November*: they should be about a Foot or fourteen Inches long, and should be planted six or eight Inches in the Ground. If the Spring following should prove dry, they must be frequently watered until they have made Roots; after which time they will require no farther Care, but to keep them clear from Weeds. These Cuttings will be rooted enough to bear transplanting in one Year; and the *October* following they should be removed; and planted either in a Nursery, where they may be train'd up to Stems, or in the Places where they are design'd to remain, which must be in a moist Soil, where they will grow to be large Trees; and being intermix'd with other Trees of the same Growth, will make an agreeable Diversity.

PORRUM, Leek.

The Characters are;

The Flower consists of six Petals, and is shap'd, as it were, like a Bell: in the Centre arises the Pointal, which afterward becomes a roundish Fruit, divided into three Cells, which contain roundish Seeds: to these Notes must be added, The Stamina are generally broad and flat, ending in three

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Capillaments; of which the middle one is furnish'd with a Chive; the Flowers are also gather'd into almost globular Bunches: the Roots are long, cylindrical, and coated; the Coats ending in plain Leaves.

The Species are;

1. *PORRUM commune capitatum.*
C. B. P. The common Leek.

2. *PORRUM setivum latifolium.*
C. B. P. Broad-leav'd Leek, commonly call'd the *London* Leek.

There are some other Species of this Plant, which grow wild in the South of *France*, and *Spain*; but as they are seldom cultivated in Gardens, I shall forbear to mention them here. The two Sorts here mention'd are by many Persons affirm'd to be the same, both of them rising from the same Seed: but this is what the Gardeners near *London* will not believe; for they never sow Seeds of the latter, if they can procure those of the first Sort, there being a great Difference in the Size of the Head, or principal Part of the Leek; but whether by long cultivating they may not alter, I cannot positively affirm, having never sown the Seeds of the latter Sort above one Year.

These Plants are cultivated by sowing their Seeds in the Spring, in the same manner as was directed for Onions, with which these are commonly sown, the two Sorts of Seeds being mix'd according to the Proportion which is desir'd of either Sort; though the most common Method is, to mix an equal Quantity of both; for the Onions will greatly out-grow the Leeks in the Spring; but these being drawn off in *July*, the Leeks will have time to grow large afterwards, so that there may be a moderate Crop of both Sorts. The Management of Leeks being exactly the same with Onions,

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I shall not repeat it in this Place ; but shall only add, that many Persons sow their Leeks very thick in Beds in the Spring ; and in June, after some of their early Crops are taken off, they dig up the Ground, and plant their Leeks out thereon, in Rows a Foot apart, and six Inches asunder in the Rows, observing to water them until they have taken Root ; after which they will require no further Culture, but to clear the Ground from Weeds : the Leeks, thus planted, will grow to a great Size, provided the Ground be good ; and this Method is very proper for such Persons who have little room.

If you would save the Seeds of this Plant, you should make choice of some of the largest and best you have, which must remain in the Place where they grew, until February ; when they should be transplanted in a Row against a warm Hedge, Pale, or Wall, at about eight Inches asunder ; and when their Stems advance, they should be supported by a String, to prevent their being broken down, to which they are very liable, especially when in Head ; and the closer they are drawn to the Fence in Autumn, the better the Seeds will ripen ; for it sometimes happens, in cold Summers or Autumns, that those which grow in the open Garden, do not perfect their Seeds in this Country, especially if there should be sharp Frosts early in Autumn, which will intirely spoil the Seed.

When it is ripe (which may be known by the Heads changing brown), you should cut off their Heads with about a Foot or more of the Stalk to each, and tie them in Bundles, three or four Heads in each, and hang them up in a dry Place, where they may remain till Christmas, or after, when you may

thresh out the Seeds for Use. The Husk of these Seeds is very tough, which renders it very difficult to get out the Seeds ; therefore some Persons, who have but a small Quantity, rub it hard against a rough Tile, which will break the Husks, and get the Seeds out better than most other Methods I have known used.

PORTULACA, Purslane.

The Characters are ;

The Flower consists of many Leaves, which expand in form of a Rose ; out of whose Flower-cup (which consists of one Leaf) arises the Pointal, which, together with the Flower-cup, becomes a Fruit for the most part oval, full of small Seeds, and furnish'd with two Shells or Husks at top ; of which the outer one, which was the Part of the Flower-cup that was split in two, opens first ; and the inner one, which is the Pointal enlarg'd, opens last doubly and transversely, while the lower Part of the Flower-cup adheres to the Footstalk.

The Species are ;

1. PORTULACA *latifolia seu sativa*. C. B. P. Broad-leav'd or Garden Purslane.

2. PORTULACA *sativa latifolia, foliis flavis*. Mor. Hist. Broad-leav'd Garden Purslane, with yellow Leaves.

3. PORTULACA *angustifolia sive sylvestris*. C. B. P. Narrow-leav'd or Wild Purslane.

4. PORTULACA *Curaçavica, folio capparidis*. Par. Bat. Purslane from Curaço, with a Caper-leaf.

The first Sort here mentioned is what the Gardeners near London do chiefly cultivate ; though the second Sort does very often come up mix'd with the first ; but whether it is only an accidental Variety arising from the same Seeds, or that the Seeds are promiscuously saved, I cannot determine : indeed, there is no other Difference

ference between them, but only the Colour of their Leaves, so that they are both equally good for Use; but the green Sort, having a better Appearance, is generally preferr'd in the Markets.

The wild Sort is not a Native of England, but grows plentifully in many warm Countries; where when it has once obtain'd so as to shed its Seeds, 'tis very difficult to extirpate again. This is seldom us'd; though 'tis not different from the Garden Kind, except in the Smalness of its Leaves.

The fourth Sort is very common in most of the warm Parts of America, where it grows in great Plenty upon the Shores and Rocks near the Sea. This is preserv'd in some curious Gardens for Variety, but is a Plant of no great Beauty.

Purslane is propagated from Seeds, which may be sown upon Beds of light rich Earth during any of the Summer-months; but if you intend to have it early in the Season, it should be sown upon an Hot-bed; for it is too tender to be sown in the open Air before April, and then it must be in a warm Situation. This Seed is very small, so that a little of it will be sufficient to supply a Family. There is no other Culture which this Plant requires, but to keep it clear from Weeds, and in dry Weather to water it three or four times a Week. In warm Weather this Plant will be fit for Use in six Weeks after sowing; so that, in order to continue a Succession of this Plant, you should sow it at three or four different Seasons, allowing a Fort-night between each Sowing, which will be sufficient to last the whole Season, while it is proper to be eaten; for, being of a very cold Nature, it is unsafe to be eaten, except in the Heat of Summer, in England;

for which Reason, it is not to any Purpose to sow it upon an Hot-bed, since it will come early enough for Use in the open Air.

POTENTILLA, Cinquefoil.

The Characters are;

The Empalement of the Flower is of one Leaf, which is slightly cut into five Parts, and alternately cut deep into five Parts: the Flower is composed of five Leaves, which are inserted into the Empalement, and spread open: in the Centre of the Flower there are several Pointals collected into one Head, and are attended by a Number of Stamina, which rise out of the Empalement: after the Flower is past, the Pointals become an Head of roundish Seeds included in the Empalement.

The Species are;

1. POTENTILLA *foliis pinnatis, caule repente. Lin. Flor.* Silver-weed, or wild Tansey.

2. POTENTILLA *foliis pinnatis quinatis, foliolis ovatis crenatis, caule erecto. Lin. Hort. Cliff.* Upright Cinquefoil, with Meadow-sweet-leaves.

3. POTENTILLA *caule fruticoso. Lin. Hort. Cliff.* Shrubby Cinquefoil.

4. POTENTILLA *foliis digitatis inciso-serratis, caule recto. Lin. Hort. Cliff.* Greater upright Cinquefoil.

5. POTENTILLA *foliis digitatis longitudinaliter patenti-serratis, caule repente. Lin. Hort. Cliff.* Common creeping Cinquefoil.

6. POTENTILLA *foliis ternatis incis, caule diffuso. Lin. Hort. Cliff.* The barren Strawberry, with upright Stalks.

There are some other Species of this Genus, which grow wild in several Parts of Europe; but are rarely admitted into Gardens; therefore I shall not enumerate them here: and of those above-mention'd, it is only

the third Species which is cultivated in Gardens ; and this is found growing wild in some of the Northern Counties of *England*. The first Sort here mention'd stands in the Catalogue of Medicinal Plants in the Dispensatory : therefore I have mention'd it here, though it is one of the most common Weeds in *England*, growing plentifully on Commons and waste Land every-where, but especially on all cold Ground ; where by its creeping Stalks, which put out Roots at every Joint, it spreads over the Surface of the Ground, and becomes a very troublesome Weed.

The fifth Sort is also a bad Weed, having the same sort of creeping Stalks as the first ; so that wherever it once gets Possession of the Ground, it multiplies and spreads to a great Distance ; therefore these two Sorts should be extirpated from every good Garden,

The second, fourth, and sixth Sorts are sometimes preserv'd in Gardens for the sake of Variety ; but as they are Plants of no Beauty, few Persons care to allow them room in their Gardens : these will propagate very fast by Seeds, which if permitted to fall on the Ground, the Plants will come up and thrive without any Culture. These Plants, which come up from self-sown Seeds, will flower and produce Seeds the next Season, and the Roots of the second and fourth will continue several Years ; but the sixth is biennial, and generally perishes soon after the Seeds are ripe.

The third Sort is propagated in many of the Nursery-Gardens near *London* for Sale. This is a low Shrub, seldom rising above four Feet high, branching out on every Side from the Stem : the Leaves are divided into several narrow Segments, which join at the Footstalk : the Flowers are

yellow, and in Shape like those of the common Cinquefoil ; these are produced at the Extremity of the Branches, and by their Succession continue to flower upward of two Months, especially when they grow upon a moist Soil.

This Plant is commonly propagated by Suckers, or laying down the tender Branches, which will take Root in one Year, and may then be taken off from the old Plants, and planted in a Nursery for a Year or two, to get Strength, before they are planted where they are design'd to remain : it may also be propagated by Cuttings, which may be planted during any of the Summer-months, in a moist shady Border, where they will soon take Root, and the *Michaelmas* following, may be transplanted into the Nursery.

The best Season for transplanting of these Plants is in *October*, that they may get new Roots before the hard Frost sets in : for as this Plant grows naturally upon moist boggy Land, so when it is remov'd in the Spring, if due Care is not taken to water it in dry Weather, it is apt to miscarry : nor will this Plant live in an hot dry Soil ; but in a shady Situation, and on a cool moist Soil, it will thrive exceedingly.

The Title of this Genus has been long applied to the first Species by several Writers on Botany and Medicine ; but Dr. *Tournefort* has separated all those Species which have wing'd Leaves, and constituted a Genus of them, by the Title of *Pentaphylloides* ; which, being a compound Name, Dr. *Linnaeus* has rejected : the other Species with hand-ed Leaves has been ranged under the Genus of *Quinquefolium* ; but now they are both join'd under the Title of *Potentilla*.

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PRASIUM, Shrubby Hedge-nettle.

The Characters are ;

The Empalement of the Flower is of one Leaf, divided into two Lips, the upper being cut into three acute Segments: the Flower is of the Lip-kind, the upper Lip being oval and erect; but the Beard is divided into three Parts, the middle Segment being broader than the other two: after the Flower is past, the four Germens in the Flower turn to so many pulpy Berries, each inclosing a single Seed.

The Species are;

1. *PRASIUM foliis ovato-oblongis serratis. Lin. Hort. Cliff.* Shrubby stinking Hedge-nettle, with oblong sawed Leaves.

2. *PRASIUM foliis ovatis, duplici utrinque crena notatis. Lin. Hort. Cliff.* Shrubby stinking Hedge-nettle, with oval Leaves indented on every Side.

The first Sort hath by some Botanists been rang'd with the *Lamium*, by others under the Genus of *Melissa*, and by Dr. *Tournefort* under that of *Galeopsis*, to which last it agrees very well in all its Characters, excepting that of the Seed being inclosed in a pulpy Cover, like a Berry, which is sufficient Reason for separating it from *Galeopsis*; though, by the establish'd Rules of Dr. *Linnaeus's* Method, it cannot be justified: yet he has separated it from that Genus, and applied this old Name of *Dioscorides*, which he had applied to a Plant of this Class, to this.

The second Sort is ranged under the same Genus by Dr. *Boerhaave*; but in the *Hortus Catholicus* it is ranged with the *Lamium*.

These are both low shrubby Plants, which seldom rise above two Feet high, and retain their Leaves thro' the Year: they will live abroad in

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England, provided they are planted on a dry Soil, and in a warm Situation, and produce Flowers from the Beginning of June to the End of August; but there is little Beauty in their Flowers; so they are only preserv'd by those who are curious in collecting of rare Plants.

These Plants are Natives of Spain, Portugal, and Sicily, so that they are impatient of severe Cold: therefore a Plant or two of each Sort should be shelter'd in Winter; because when the Frost is very severe, they are often destroy'd when they are planted in the full Ground, though they will abide the Cold of our common Winters very well in the open Air.

They may be propagated either by Cuttings, or from the Seeds: if they are propagated by Cuttings, they should be planted on a shady Border, toward the End of April; but the Cuttings should not be taken from those Plants which had been drawn weak, but rather from those which had been expos'd to the open Air, whose Shoots are short and strong; and if a Joint of the former Year's Wood is cut to each of them, they will more certainly succeed: these Cuttings may remain in the same Border until the following Autumn, when they may be transplanted into the Places where they are to remain, or into Pots, that they may be shelter'd in Winter under a common Frame, where they may have as much free Air as possible in mild Weather, but only require to be screen'd from hard Frost.

If they are propagated by Seeds (which the Plants produce in Plenty every Year), they should be sown on a Bed of light Earth in April; and in May the Plants will come up, when they require no other Care but that of keeping them clean from Weeds;

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Weeds; and in the Autumn following they may be transplanted in the same manner as before directed for those raised from Cuttings, and may be afterward treated more hardily, as they acquire Strength.

A Plant or two of each of these Species may be allow'd to have a Place where there are Collections of the different Sorts of ever-green Shrubs, for the sake of Variety, especially where the different Sorts of Cistus, Phlomis, Tree-wormwood, and Medicago, are admitted, because these are equally hardy, and when a severe Winter happens, which destroys the one, the others are sure of the same Fate.

PRENANTHES, Wild Lettuce.

The Characters are;

It hath flosculous Flowers, which are included in one common Empalement, which is cylindrical and squamous: the Florets are hermaphrodite, each being monopetalous, having one Side stretched out like a Tongue, and divided into four Segments, each of these having a Pointal in their Centre attended by five slender Stamina; and afterward the Pointal becomes an oblong Seed, crowned with a Down.

The Species are;

1. PRENANTHES *flosculis quinis, foliis pinnato-hastatis*. Lin. Hort. Cliff. Wild Lettuce, or Sowthistle, with spear-shap'd wing'd Leaves, and a yellow Flower.

2. PRENANTHES *flosculis quinis, foliis lanceolatis denticulatis*. Lin. Hort. Cliff. Purple mountain wild Lettuce.

3. PRENANTHES *flosculis plurimis, foliis hastatis angulatis*. Lin. Hort. Cliff. American Wild Lettuce, with angular Leaves.

4. PRENANTHES *autumnalis, flore dilute purpureo deorsum nutante, spicatum ad caulem disposito, foliis sca-*

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bris incisiss, caule singulari. Flor. Virg. Dr. Witt's Rattle-snake Root.

5. PRENANTHES *foliis integris serratis scabris, radice repente, flore purpureo-cæruleo*. American wild Lettuce, with whole saw'd rough Leaves; a creeping Root; and purple Flower.

The first Sort grows wild upon the Sides of dry stony Banks, and on the Tops of Walls, in several Parts of England. The second grows wild in several Parts of Europe: but the others are Natives of America. The fourth Sort has been esteem'd a sure Antidote to expel the Poison of the Rattle-snake, and therefore I have mention'd these Plants; for they are never preserv'd in Gardens, except for the sake of Variety, being troublesome Weeds, where they are permitted to scatter their Seeds; so that whoever is desirous to cultivate them, need be at no Trouble but to sow their Seeds in a moist shady Situation, where the Plants will come up and thrive without any farther Care.

PRIMULA, Primrose.

The Characters are;

The Flower consists of one Leaf; the lower Part of which is tubulose, but the upper Part expands itself flat in form of a Salver, and is cut into several Segments: from the Flower-cup (which is fistulous) arises the Pointal; which, when the Flower is decay'd, becomes an oblong Fruit or Husk, lying almost conceal'd in the Flower-cup, and opens at the Top; in which are contain'd many roundish Seeds fasten'd to the Placenta.

The Species are;

1. PRIMULA *vulgaris*. Park. Common Primrose.

2. PRIMULA *Constantinopolitana, flore albo*. Tourn. Primrose of Constantinople, with a white Flower,

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commonly call'd the Paper-white Primrose.

3. PRIMULA *Constantinopolitana*, *flore dilute carneo*. Tourn. Primrose of *Constantinople*, with a pale flesh-colour'd Flower.

4. PRIMULA *Constantinopolitana*, *flore dilute purpureo*. Tourn. Primrose of *Constantinople*, with a pale-purple Flower.

5. PRIMULA *Constantinopolitana*, *flore albo duplici*. Primrose of *Constantinople*, with a double white Flower, commonly call'd the double Paper-white Primrose.

6. PRIMULA *vulgaris*, *flore dilute purpureo*. Common Primrose, with a pale-purple Flower.

7. PRIMULA *vulgaris*, *flore pleno*. Common Primrose, with a very double Flower.

8. PRIMULA *vulgaris*, *flore pleno*, *dilute rubente*. Common Primrose, with a double pale-red Flower.

9. PRIMULA *pallido flore*, *elatior*. *Clus.* Common Pagils or Cowslips.

10. PRIMULA *umbellata odorata pratensis*. Great Cowslips, or Ox-lips.

11. PRIMULA *geminato flore*. *H. Eyst.* Double Cowslips, or Hose in Hose.

12. PRIMULA *canlifera*, *flore luteo pleno odorato*. *J. B.* Cowslip or Pagil, with a very double Flower.

13. PRIMULA *hortensis umbellata*, *caule & flore folioso coccineo majore*. *H. L.* Garden Primrose or Polyanthus, with a large red Flower.

14. PRIMULÆ *umbellatæ odoratæ hortensis simplicis varietas uberrima pro varietate jucundissima, coloris multiplicis*. *Boerh. Ind.*

There are a great Variety of the Garden Primroses, or Polyanthus's, which are annually produced from Seeds; the Flowers of which are beautifully strip'd, and some of them have a great Number of Flowers

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upon a Stalk, so that they equal the Auricula's in the Beauty of their Flowers; and as they require but little Culture, they have, in many Gardens, obtain'd the Preference to most other Spring Flowers.

The first Sort of Primrose grows wild in Woods, and other shady Places, in most Parts of *England*, from whence their Roots may be easily transplanted into the Garden; where, if they are placed under Hedges, and in shady Walks, they make a beautiful Appearance early in the Spring, when few other Plants are in Flower.

The best Time to transplant them is at *Michaelmas*, that their Roots may have Strength to produce their Flowers early in the Spring. These delight in a strong rich Soil, but will grow in almost any Sort of Earth, provided they have a shady Situation.

The sixth, seventh, and eighth Sorts are Varieties of the first, which have been accidentally produced from Seeds: these may be propagated by parting of their Roots at *Michaelmas*, and must be treated as the common Sort.

The ninth and tenth Sorts also grow wild in the Meadows in divers Parts of *England*, the Roots of which are often transplanted into Gardens; where, if they are intermix'd with other early-flowering Plants, they afford an agreeable Variety.

The eleventh and twelfth Sorts are Varieties which were produced from Seeds of the former; but the last is, at present, very rare in *England*. These may be propagated by parting their Roots at *Michaelmas*, and should be planted on a strong Soil, and expos'd to the morning Sun.

The several Varieties of Polyanthus's

thus's are produced by sowing of Seeds, which should be sav'd from such Flowers as have large upright Stems, producing many Flowers upon a Stalk, the Flowers large, beautifully strip'd, and that open flat: from the Seeds of such Flowers there is room to hope for a great Variety of good Sorts.

These Seeds should be soon in Boxes fill'd with light rich Earth, in *December*, being very careful not to bury the Seed too deep; for, if it be only cover'd with light Earth, it will be sufficient: these Boxes should be plac'd where they may receive the Benefit of the morning Sun until Ten of the Clock; but must by no means be expos'd to the Heat of the Day, especially when the Plants begin to appear; for at that time one whole Day's Sun will intirely destroy them: in the Spring, if the Season should prove dry, you must often refresh them with Water; and as the Heat increases, you should remove the Boxes more in the Shade; for the Heat is very injurious to them.

In *May* these Plants will be strong enough to plant out; at which time you should prepare some shady Borders, which should be made rich; upon which you must set the Plants about four Inches asunder, observing to water them until they have taken Root; after which they will require no farther Care but to keep them clear from Weeds, until the Latter-end of *August* following; when you should prepare some Borders, which are expos'd to the East, with good light rich Earth, into which you must transplant your *Polyanthus's*, placing them six Inches asunder equally in Rows, observing, if the Season prove dry, to water them until they have taken Root. In these Borders your Plants will flow-

er the succeeding Spring; at which time you must observe to mark such of them as are fine, to preserve; and the rest may be transplanted into Wilderesses, and other shady Places in the Garden; where, although they are not very valuable Flowers, they will afford an agreeable Variety.

Those which you intend to preserve, may be remov'd soon after they have done flowering (provided you do not intend to save Seeds from them), and may be then parted and transplanted into a fresh Border of the like rich Earth, allowing them the same Distance as before; observing also to water them until they have taken Root, after which they will require no farther Care, but only to keep them clean from Weeds; and the following Spring they will produce strong Flowers; and if the Kinds are good, will be little inferior to a Shew of *Auricula's*.

These Roots should be constantly remov'd and parted every Year, and the Earth of the Border chang'd, otherwise they will degenerate, and lose the greatest Part of their Beauty.

If you intend to save Seeds, which is the Method to obtain a great Variety, you must mark such of them, which, as I said before, have good Properties: these should be, if possible, separated from all ordinary Flowers; for if they stand surrounded with plain-colour'd Flowers, they will impregnate each other; whereby the Seeds of the valuable Flowers will not be near so good, as if the Plants had been in a separate Border where no ordinary Flowers grew: therefore the best Way is to take out the Roots of such as you do not esteem, as soon as the Flowers open, and plant them in another Place, that there may be none left

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left in the Border, but such as you would choosa for Seeds.

The Flowers of these should not be gather'd, except such as are produc'd singly upon Pedicles, leaving all such as grow in large Bunches; and if the Season should prove dry, you must now-and-then refresh them with Water, which will cause their Seeds to be larger, and in greater Quantity, than if they were intirely neglected. Towards the Latter-end of May the Seed will be ripe, which may be easily known by the Pods changing brown, and opening; so that you should at that time look over it three times a Week, gathering each time such of it as is ripe, which should be laid upon a Paper to dry, and may then be put up until the Season of sowing.

PRIMROSE-TREE. *Vide Onagra.*

PRINOS, Winter-berry.

The Characters are;

The Empalement of the Flower is of one Leaf, cut at the Brim into six Parts: the Flower is of the Wheel-shap'd Kind, cut into six Parts at the Top, but is of one Leaf: in the Centre of the Flower arises the Pointal, attended by six Stamina, supporting obtuse Summits: the Pointal afterward becomes a roundish Berry, having six Cells containing one hard angular Seed.

We have but one Species of this Genus;

PRINOS. *Flor. Virg.* The Winter-berry.

This is but a low Shrub with us in England, rarely growing above four Feet high; but in North America, which is the native Place of its Growth, it rises much higher, and branches out on every Side: the Branches are slender and pliant, and are garnish'd with oblong blunt Leaves, which are intire. In June

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the Flowers are produced, which are white, and not very beautiful; but these are succeeded by round Berries, which are shap'd like those of the Holly, and are of a bright-red Colour: these remain upon the Shrubs after the Leaves are fallen, and make a pretty Appearance, and from thence had the Title of Winter-berry applied to it, by the Inhabitants of those Countries.

It is propagated by Seeds, which should be sown soon after they are ripe, upon a Bed of light Earth, covering them about one Inch with the same Sort of Earth: the Seeds which are so soon put into the Ground will many of them come up the following Spring, whereas those which are kept longer out of the Ground, will remain a whole Year in the Ground before the Plants will appear, in the same manner as the Holly, Hawthorn, and some others; therefore the Ground should not be disturbed, if the Plants do not come up the first Year. The young Plants may be treated in the same manner as hath been directed for the American Hawthorns, and are full as hardy; but they delight in a moist Soil, and a shady Situation: for in hot dry Land they make but little Progress, and rarely produce any Fruit.

PRIVET. *Vide Ligustrum.*

PROTEA, The Silver-tree, *vulgo.*

The Characters are;

The Flower is of one Leaf, and are many of them collected in an Head, like those of the Artichoke: in each of these the Pointal is situated at the Bottom, attended by four Stamina, which extend beyond the Petal of the Flower: the Pointal afterward becomes a single roundish Seed: the Seeds are collected together in such a manner as to form a sort of Cone.

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The Species are;

1. *PROTEA foliis lineari-lanceolatis integerrimis, superioribus hirsutis nitidis.* Flor. Leyd. The narrow or willow-leav'd Silver-tree.

2. *PROTEA foliis lanceolatis integerrimis acutis hirsutis nitidis.* Lin. Hort. Cliff. The broad-leav'd Silver-tree.

3. *PROTEA foliis lanceolatis acuminatis flexuosis, capitulis corona foliacea succinctis.* Flor. Leyd. Silver-tree with flexible pointed spear-shap'd Seeds, and the Heads crown'd with Leaves.

These Plants are Natives of the Country near the *Cape of Good Hope* in *Africa*, where there are a great Number of Species: in the Catalogue of the *Leyden* Garden there are upward of twenty Sorts enumerated: not that they have them growing there, but they have good Drawings of them, which were made in the Country where they are Natives. The three Sorts here mention'd are what I have seen growing; but at present we have but two of them in the *English* Gardens, which are the first and second Species, and these are but in few Gardens here.

These Plants are many of them well figured in the Index of the Plants of the *Leyden* Garden, which was publish'd by Dr. *Boerhaave* in the Year 1719. by the Titles of *Lepidocarpodendron*, *Conocarpodendron*, and *Hypophyllocarpodendron*; and by some former Writers on Botany, this Genus was intituled *Scolymocephalus*, from the Resemblance which the Cones of these Trees have to the Head of an Artichoke.

As these Plants are Natives of the *Cape of Good Hope*, they are too tender to live abroad through the Winter in *England*; but the first Sort is hardy enough to live in a good Green-house: this Sort will grow to

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the Height of ten or twelve Feet, and may be train'd up with a regular strait Stem, and the Branches will naturally form a regular large Head: the Leaves are long and narrow, and of a shining silver Colour; and as they remain the whole Year, so the Plants make a fine Appearance, when they are intermix'd with others in the Green-house. In the Summer these may be plac'd in the open Air, in a shady Situation; for if they are expos'd to Winds, the Plants will be torn, and render'd un-fightly, nor will they make any Progress in their Growth: in warm Weather they must be frequently water'd; but in cold Weather this must not be done in large Quantities, nor too often repeated, lest it should rot their Fibres.

The other Sorts are not so hardy as this; therefore they must be plac'd in a moderate Stove in the Winter, otherwise they cannot be preserv'd here. These do not form so large Heads as the first; but, however, for the fine silver Leaves with which their Branches are closely garnish'd, they merit a Place in every good Collection of Exotic Plants.

I have not as yet seen either of these Sorts in Flower; though as the Plants grow older, we may hope to have them produce their Flowers in *England*: but if they should not produce any, yet the fine Appearance which the Leaves of these Plants make, renders them worthy of being preserv'd.

The first Sort may be propagated by Cuttings, which should be planted in *April*, in Pots of rich Earth, and plunged into a moderate Hot-bed, and must be shaded from the Sun in the Heat of the Day, and duly water'd. These Cuttings will have good Roots by the Month of *August*, when they should be carefully

fully transplanted, each, into a separate small Pot fill'd with light rich Earth, and plac'd in a shady Situation until they have taken new Root; after which they may be placed in a sheltered Situation, where they may remain till *October*, when they must be remov'd into the Green-house.

The other Sorts are not so easily propagated; for I have not been able to get one Plant from the Cuttings; nor do the Branches which are laid down take Root, so that they are propagated from Seeds only; and as it is very difficult to procure their Seeds from the Country where these Trees are Natives, so they are very rare in *Europe*.

PRUNING OF TREES: There is not any Part of Gardening, which is of more general Use than that of Pruning; and yet it is very rare to see Fruit-trees skilfully manag'd: almost every Gardener will pretend to be a Master of this Business, though there are but few who rightly understand it; nor is it to be learn'd by Rote, but requires a strict Observation of the different Manners of Growth of the several Sorts of Fruit-trees; some requiring to be manag'd one way, and others must be treated in a quite different Method, which is only to be known from carefully observing how each Kind is naturally disposed to produce its Fruit: for some Sorts produce their Fruit on the same Year's Wood, as Vines; others produce their Fruit, for the most part, upon the former Year's Wood, as Peaches, Nectarines, &c. and others upon Cursons or Spurs, which are produc'd upon Wood of three, four, or five, to fifteen or twenty Years old, as Pears, Plums, Cherries, &c. therefore, in order to the right Management of Fruit-trees, there should always be Provision

made to have a sufficient Quantity of bearing Wood in every Part of the Trees; and at the same time there should not be a Superfluity of useless Branches, which would exhaust the Strength of the Trees, and cause them to decay in a few Years.

The Reasons which have been laid down for Pruning of Fruit-trees, are as follow: First, to preserve Trees longer in a vigorous bearing State; the second is, to render the Trees more beautiful to the Eye; and, thirdly, to cause the Fruit to be larger, and better tasted.

1. It preserves a Tree longer in an healthy bearing State; for by pruning off all superfluous Branches, so that there are no more left upon the Tree than are necessary, or than the Roots can nourish properly, the Root is not exhausted in supplying useless Branches, which must afterwards be cut out; whereby much of the Sap will be uselessly expended.

2. By skilful Pruning of a Tree, it is render'd much more pleasing to the Eye: but here I would not be understood to be an Advocate for a sort of Pruning, which I have seen too much practis'd of late; *viz.* the drawing a regular Line against the Wall, according to the Shape or Figure they would reduce the Tree to, and cutting all the Branches, strong or weak, exactly to the chalk'd Line; the Absurdity of which Practice will soon appear to every one who will be at the Pains of observing the Difference of those Branches shooting the succeeding Spring. All therefore that I mean by rendering a Tree beautiful, is, that the Branches are all prun'd according to their several Strengths, and are nail'd at equal Distances, in proportion to the different Sizes of their Leaves and Fruit; and that no Part of the Wall (so far as the Trees are advanc'd) be

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left unfurnish'd with bearing Wood. A Tree well manag'd, though it does not represent any regular Figure, yet will appear very beautiful to the Sight, when it is thus dress'd, and nail'd to the Wall.

3. It is of great Advantage to the Fruit; for the cutting away all useless Branches, and shortening all the bearing Shoots, according to the Strength of the Tree, will render the Tree more capable to nourish those which are left remaining, so that the Fruit will be much larger, and better tasted. And this is the Advantage which those Trees against Walls or Espaliers have, to such as are Standards, and are permitted to grow as they are naturally inclined; for it is not their being trained either to a Wall or Espalier, which renders their Fruit so much better than Standards, but because they have a less Quantity of Branches and Fruit for their Roots to nourish; and consequently their Fruit will be larger, and better tasted.

The Reasons for Pruning being thus exhibited, the next Thing is the Method of performing it; but this being fully handled under the several Articles of the different Kinds of Fruit, I shall not repeat it again in this Place.

PRUNUS, The Plum-tree.

The Characters are;

The Flower consists of five Leaves, which are placed in a circular Order, and expand in form of a Rose; from whose Flower-cup rises the Pointal, which afterward becomes an oval or globular Fruit, having a soft fleshy Pulp, surrounding an hard oblong Stone, for the most part pointed: to which should be added, The Footstalks are long and slender, and have but a single Fruit upon each.

The Species are;

1. PRUNUS fructu parvo præcoci.

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Tourn. The Jean-hâtive, or White Primordian. This is a small longish white Plum, of a clear yellow Colour, cover'd over with a white Flew, which easily wipes off. The Juice is sweet; is a pretty good Bearer; and, for its coming very early, one Tree may be allowed to have a Place in every good Garden of Fruit. This ripens the Beginning of July, but soon becomes mealy.

2. PRUNUS fructu magno crasso subacido. *Tourn.* Damas noir hâtive, i. e. the early black Damask, commonly called The Morocco Plum. This is a pretty large Plum, of a round Shape, divided with a Furrow in the Middle (like Peaches); the Outside is of a dark-black Colour, covered with a light-violet Bloom; the Flesh is yellow, and parts from the Stone. It ripens in the Middle of July, and is esteem'd for its Goodness.

3. PRUNUS fructu parvo dulci atro-cæruleo. *Tourn.* The little black Damask Plum. This is a small black Plum, cover'd over with a violet Bloom; the Juice is richly sugar'd; the Flesh parts from the Stone; and it is a good Bearer. Ripe the Middle of July.

4. PRUNUS fructu magno dulci atro-cæruleo. *Tourn.* Gros Damas Violet de Tours, i. e. Great Damask Violet of Tours. This is a pretty large Plum, inclining to an oval Shape; the Outside is of a dark Blue, cover'd with a violet Bloom; the Juice is richly sugar'd, the Flesh is yellow, and parts from the Stone. Ripe the Middle of July.

5. PRUNUS fructu rotundo atro-rubente. The Orleans Plum. The Fruit is so well known to almost every Person, that it is needless to describe it; is a very plentiful Bearer, which has occasion'd its being so gene-

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generally planted by those Persons who supply the Markets with Fruit; but it is an indifferent Plum.

6. *PRUNUS fructu oblongo atro-rubente.* The *Fotheringham* Plum. This Fruit is somewhat long, deeply furrow'd in the Middle; the Flesh is firm, and parts from the Stone; the Juice is very rich. This ripens about the Middle of *July*.

7. *PRUNUS fructu nigro, carne dura.* *Tourn.* The *Perdrigon* Plum. This is a middle-siz'd Plum, of an oval Shape: the Outside is of a very dark Colour, cover'd over with a violet Bloom: the Flesh is firm, and full of an excellent rich Juice: this is greatly esteem'd by the Curious. Ripe the Latter-end of *July*.

8. *PRUNUS fructu magno e violaceo rubente suavissimo saccharato.* *Tourn.* The violet *Perdrigon* Plum. This is a large Fruit, rather round than long, of a bluish red Colour on the Outside: the Flesh is of a yellowish Colour, pretty firm, and closely adheres to the Stone: the Juice is of an exquisite rich Flavour. This ripens the End of *July*.

9. *PRUNUS fructu ovato ex albo flavescente.* The white *Perdrigon* Plum. This is a middling Plum, of an oblong Figure: the Outside is yellow, covered with a white Bloom: the Flesh is firm, and well-tasted: it is a very good Fruit to eat raw, or for Sweet-meats, having an agreeable Sweetness mixed with an Acidity.

10. *PRUNUS fructu ovato magno rubente.* *Tourn.* The red *Imperial* Plum, sometimes call'd the Red *Bonum Magnum*. This is a large oval-shap'd Fruit, of a deep-red Colour, cover'd with a fine Bloom: the Flesh is very dry, and very indifferent to be eaten raw; but is excellent for making Sweet-meats: this is a great Bearer. Ripe the End of *July*.

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11. *PRUNUS fructu ovato magno flavescente.* *Tourn.* White *Imperial Bonum Magnum*; white *Holland* or *Mogul* Plum. This is a large oval-shap'd Fruit, of a yellowish Colour, powdered over with a white Bloom: the Flesh is firm, and adheres closely to the Stone: the Juice is of an acid Taste, which renders it unpleasant to be eaten raw; but it is very good for Baking, or Sweet-meats: it is a great Bearer, and is ripe towards the End of *August*.

12. *PRUNUS fructu ovato caeruleo.* The *Cheston* Plum. This is a middle-siz'd Fruit, of an oval Figure; the Outside is of a dark Blue, powder'd over with a violet Bloom; the Juice is rich, and it is a great Bearer. Ripe the End of *July*.

13. *PRUNUS fructu maximo rotundo flavo & dulci.* *Tourn.* *Prune d'Abricot, i. e.* The *Apricot-plum*. This is a large round Fruit of a yellow Colour on the Outside, powder'd over with a white Bloom; the Flesh is firm and dry, of a sweet Taste, and comes clean from the Stone. This ripens the End of *July*.

14. *PRUNUS fructu subrotundo, ex rubro & flavo mixto.* The *Maitre Claud*. Although this Name is applied to this Fruit, yet it is not what the *French* so call. This is a middle-siz'd Fruit, rather round than long, of a fine mix'd Colour, between Red and Yellow; the Flesh is firm, and parts from the Stone, and has a delicate Flavour. Ripe the End of *July*.

15. *PRUNUS fructu rubente dulcissimo.* *Tourn.* *La Rochecourbon*, or *Diaprée rouge, i. e.* the red *Diaper* Plum. This is a large round Fruit, of a redish Colour, powder'd over with a violet Bloom; the Flesh adheres closely to the Stone, and is of a very high Flavour. Ripe in the Beginning of *August*.

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16. *PRUNUS fructu rotundo flavescente*. La petite Reine Claude, *i. e.* Queen Claudia. This is a small round Fruit, of a whitish-yellow Colour, powder'd over with a pearl-colour'd Bloom; the Flesh is firm and thick, quits the Stone, and its Juice is richly sugar'd. Ripe the Middle of *August*.

17. *PRUNUS fructu rotundo nigro-purpureo majori dulci*. Tourn. Myrobalan Plum. This is a middle-siz'd Fruit, of a round Shape; the Outside is a dark Purple, powder'd over with a violet Bloom; the Juice is very sweet. It is ripe the Middle of *August*.

18. *PRUNUS fructu rotundo e viridi flavescente, carne dura, suavissimo*. La grosse Reine Claude, *i. e.* the large Queen Claudia, by some the Dauphiny. At *Tours* it is call'd the Abricot verd, *i. e.* Green Apricot: at *Rouen*, Le verte bonne, *i. e.* the good Green: and in other Places, Dainas verd, *i. e.* Green Damask, or Tromp-valet, the Servants Cheat. This is one of the best Plums in *England*; it is of a middle Size, round, and of a yellowish-green Colour on the Outside; the Flesh is firm, of a deep-green Colour, and parts from the Stone; the Juice has an exceeding rich Flavour, and it is a great Bearer. Ripe the Middle of *August*. This Plum is confounded by most People in *England*, by the Name of Green Gage; but this is the Sort which should be chosen, although there are three or four different Sorts of Plums generally sold for it, one of which is small, round, and dry: this quits the Stone, and is later ripe, so not worth preserving.

19. *PRUNUS fructu amygdalino*. Tourn. Rognon de Coq, *i. e.* Cock's Testicles. This is an oblong Fruit, deeply furrow'd in the Middle, so as to resemble the Testicles; it is of a

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whitish Colour on the Outside, streak'd with Red; the Flesh of it adheres firmly to the Stone, and it is late ripe.

20. *PRUNUS fructu rotundo flavo dulcissimo*. Drap d'Or, *i. e.* the Cloth of Gold Plum. This is a middle-siz'd Fruit, of a bright-yellow Colour, spotted or streak'd with red on the Outside; the Flesh is yellow, and full of an excellent Juice. It is a plentiful Bearer, and ripens about the Middle of *August*.

21. *PRUNUS fructu cerei coloris*. Tourn. Prune de Sainte Catharine, *i. e.* St. Catharine Plum. This is a large oval-shap'd Fruit, somewhat flat; the Outside is of an Amber Colour, powder'd over with a whitish Bloom; but the Flesh is of a bright-yellow Colour, is dry and firm, adheres closely to the Stone, and has a very agreeable sweet Taste. This ripens at the End of *August*, and is very subject to dry upon the Tree, when the Autumn proves warm and dry. This makes fine Sweetmeats, and is a plentiful Bearer.

22. *PRUNUS fructu ovato rubente dulci*. The Royal Plum. This is a large Fruit of an oval Shape, drawing to a Point next the Stalk; the Outside is of a light-red Colour, powder'd over with a whitish Bloom; the Flesh adheres to the Stone, and has a fine sugary Juice. This ripens the End of *August*.

23. *PRUNUS fructu parvo ex viridi flavescente*. Tourn. La Mirabelle. This is a small round Fruit, of a greenish-yellow on the Outside; the Flesh parts from the Stone, is of a bright-yellow Colour, and has a fine sugary Juice. This is a great Bearer, ripens the Beginning of *August*, and is excellent for Sweetmeats.

24. *PRUNUS Brigonensis, fructu suavissimo*. Tourn. Prune de Brignole; *i. e.* The Brignole Plum. This

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This is a large oval-shap'd Fruit, of a yellowish Colour, mix'd with Red on the Outside; the Flesh is of a bright-yellow Colour, is dry, and of an excellent rich Flavour. This ripens the Middle of *August*, and is esteem'd the best Plum for Sweetmeats yet known.

25. *PRUNUS fructu magno e violaceo rubente serotino. Tourn.* Imperatrice, *i. e.* The Empress. This is a large round Fruit, of a violet-red Colour, very much powder'd with a whitish Bloom; the Flesh is yellow, cleaves to the Stone, and is of an agreeable Flavour. This ripens about the Middle of *September*.

26. *PRUNUS fructu ovato maximo flavo. Tourn.* Prune de Monsieur, *i. e.* The Monsieur Plum. This is sometimes call'd the *Wentworth* Plum. It is a large oval shap'd Fruit, of a yellow Colour both within and without, very much resembling the *Bonum Magnum*; but the Flesh of this parts from the Stone, which the other doth not. This ripens toward the Latter-end of *August*, and is very good to preserve; but the Juice is too sharp to be eaten raw: it is a great Bearer.

27. *PRUNUS fructu majori rotundo rubro. Tourn.* Prune Cerizette, *i. e.* The Cherry Plum. This Fruit is commonly about the Size of the Ox-heart Cherry, is round, and of a red Colour; the Stalk is long, like that of a Cherry, which this Fruit so much resembles, as not to be distinguish'd therefrom at some Distance. The Blossoms of this Tree come out very early in the Spring, and, being tender, are very often destroy'd by Cold; but it affords a very agreeable Prospect in the Spring; for these Trees are generally cover'd with Flowers, which open about the same time as the Almonds; so that when they are inter-

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mix'd therewith, they make a beautiful Appearance before many other Sorts put out: but by this blossoming so early, there are few Years that they have much Fruit.

28. *PRUNUS fructu albo oblongiusculo acido. Tourn.* The white Pear-plum. This is a good Fruit for Preserving; but is very unpleasant, if eaten raw; it is very late ripe, and seldom planted in Gardens, unless for Stocks to bud some tender Sorts of Peaches upon; for which Purpose it is esteem'd the best amongst all the Sorts of Plums.

29. *PRUNUS Mytellinum. Park.* The Muscle-plum. This is an oblong flat Plum, of a dark-red Colour; the Stone is large, and the Flesh but very thin, and not well-tasted, so that its chief Use is for Stocks, as the former.

30. *PRUNUS fructu parvo violaceo.* The St. Julian Plum. This is a small Fruit, of a dark-violet Colour, powder'd over with a mealy Bloom; the Flesh adheres closely to the Stone, and in a fine Autumn will dry upon the Tree. The chief Use of this Plum is for Stocks, to bud the more generous Kinds of Plums and Peaches upon; as also for the *Bruxelles* Apricot, which will not thrive so well upon any other Stock.

31. *PRUNUS sylvestris major. F. B.* The black Bullace-tree. This grows wild in the Hedges in divers Parts of *England*, and is rarely cultivated in Gardens.

32. *PRUNUS sylvestris, fructu majore albo. Raii Syn.* The white Bullace-tree. This grows wild, as the former, and is seldom cultivated in Gardens.

33. *PRUNUS sylvestris. Ger. Emac.* The Black-thorn, or Sloe tree. This is very common in the Hedges almost every-where: the chief Use of this Tree is to plant for Hedges, as

White-thorn, &c. and, being of quick Growth, is very proper for that Purpose.

All the Sorts of Plums are propagated by budding or grafting them upon Stocks of the Muscle, White Pear, St. Julian, Bonum Magnum, or any other Sorts of free-shooting Plums. The manner of raising these Stocks hath been already exhibited under the Article of Nurseries; therefore need not be repeated again in this Place: but I would observe, that Budding is much preferable to Grafting for these Sorts of Fruit-trees, which are very apt to gum, where-ever there are large Wounds made on them.

The Trees should not be more than a Year's Growth from the Bud, when they are transplanted; for if they are older, they seldom succeed so well, being very subject to canker; or, if they take well to the Ground, commonly produce only two or three luxuriant Branches; therefore it is much more advisable to choose young Plants.

The manner of preparing the Ground (if for Walls) is the same as for Peaches; as is also the pruning the Roots, and planting; and therefore I shall forbear repeating it again. The Distance which these Trees should be planted at, must not be less than twenty, or twenty-four Feet; and if the Wall is low, they should be placed thirty Feet asunder.

Plums should have a middling Soil, neither too wet and heavy, nor over-light and dry; in either of which Extremes they seldom do so well: and those Sorts which are planted against Walls, should be placed to an East or South-east Aspect; which is more kindly to these Fruits than a full South Aspect, on which they are subject to shrivel, and

be very dry; and many Sorts will be extreme mealy, if expos'd too much to the Heat of the Sun; but most Sorts will ripen extremely well on Espaliers, if rightly manag'd.

There are some Persons who plant Plums for Standards, in which Method some of the ordinary Sorts will bear very well; but then the Fruit will not be near so fair as those produc'd on Espaliers, and will be more in Danger of being bruised, or blown down, by strong Winds. The Distance of placing them for Espaliers must be the same as against Walls; as must also their Pruning and Management; so that whatever may be hereafter mention'd for one, should be likewise understood for both.

Plums do not only produce their Fruit upon the last Year's Wood, but also upon Cursons or Spurs, which come out of Wood that is many Years old; so that there is not a Necessity of shortening the Branches, in order to obtain new Shoots annually in every Part of the Tree (as in Peaches, Nectarines, &c. hath been directed), since the more these Trees are pruned, the more luxuriant they grow, until the Strength of them is exhausted, and then they gum and spoil: therefore the safest Method to manage these Trees is, to lay in their Shoots horizontally, as they are produced, at equal Distances, in proportion to the Length of their Leaves; and where there is not a sufficient Quantity of Branches to fill up the Vacancies of the Tree, there the Shoots may be pinch'd the Beginning of May (in the manner as hath been directed for Peaches, &c.); which will cause them to produce some lateral Branches to supply those Places; and during the growing Season, all fore-right Shoots should be displaced; and such as are to remain must be regularly train'd in to the Wall

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Wall or Espalier; which will not only render them beautiful, but also give to each an equal Advantage of Sun and Air: and hereby the Fruit will be always kept in a ductile, growing State; which they seldom are, when overshaded with Shoots some Part of the Season, and then suddenly exposed to the Air, by the taking off or training those Branches in their proper Position.

With thus carefully going over these Trees in the growing Season, there will be but little Occasion for cutting them in Winter; which (as I before have said) is of ill Consequence to all Sorts of Stone-fruit; for when the Branches are shorten'd, the Fruit is cut away, and the Number of Shoots increas'd: so where-ever a Branch is shorten'd, there are commonly two or more Shoots produc'd from the Eyes immediately below the Cut; and by thus unskilfully Pruning, many Persons croud their Trees with Branches, and thereby render what little Fruit the Trees produce, very small and ill-tasted; which is very commonly found in too many Gardens, where the Manager, perhaps, thinks himself a complete Master of his Business. For nothing is more common, than to see every Branch of a Fruit-tree pass the Discipline of the Knife, however agreeable it be to the several Sorts of Fruits. And it is common to see these Trees planted at the Distance of fourteen or sixteen Feet, so that the Walls are in a few Years cover'd with Branches; and then all the Shoots are cut and mangled with the Knife, so as to appear like a stumped Hedge, and produce little Fruit: therefore the only way to have Plum-trees in good Order, is to give them room, and extend their Branches at full Length.

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Those few Rules, before laid down, will be sufficient, if due Observation be join'd therewith, to instruct any Person in the right Management of these Sort of Fruit-trees; therefore I shall not say any more on that Subject, lest, by multiplying Instructions, it may render it more obscure to a Learner.

PSEUDOACACIA. *Vide* Robinia.

PSYLLIUM, Fleawort.

The Characters are;

This Plant agrees with Plantain and Buckhorn-plantain in every respect, excepting that this rises up with lofty Stalks, and divides into many Branches; whereas both the others produce their Flowers upon naked Pedicles.

The Species are;

1. PSYLLIUM *majus erectum*. C. B. P. Greater upright Fleawort.
2. PSYLLIUM *majus supinum*. C. B. P. Greater Fleawort, whose Branches spread to the Ground.
3. PSYLLIUM *Indicum, foliis crenatis*. J. B. Indian Fleawort, with notched Leaves.

There are several other Varieties of these Plants, distinguish'd by Writers in Botany: but since they are of little Use or Beauty, I shall pass them by without naming.

These Plants may be propagated by sowing their Seeds in the Spring, on a Bed of light Earth; and when they are come up, they should be clear'd from Weeds; pulling out at the same time some of the Plants, where they stand too close, leaving the remaining ones about eight or nine Inches asunder: after which they will require no farther Care, but to clear them from Weeds; and in July they will flower, and their Seeds will ripen in Autumn.

The second Sort will abide two or three

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three Years, provided the Plants are on a poor dry Soil; but the other two Sorts perish every Year.

The first Sort, which is the most common, is used in Medicine; but the other two are never used in England.

PTARMICA, Sneezwort.

The Characters are;

It hath radiated Flowers, whose Disk consists of many Florets; but the Borders are composed of Half-florets: the Embryoes are lodg'd in the Flower-cup, which is scaly, each of which becomes one slender Seed.

The Species are;

1. *PTARMICA vulgaris, folio longo serrato, flore albo.* J. B. Common Sneezwort, with a long serrated Leaf, and white Flower.

2. *PTARMICA vulgaris, flore pleno.* Clus. Hist. Common Sneezwort, with a double Flower, by some called Double Pellitory.

3. *PTARMICA foliis profundis serratis, late viridibus, elatior.* H. L. Taller Sneezwort, with broad green Leaves deeply serrated.

4. *PTARMICA Alpina, incanis serratis foliis.* H. L. Alpine Sneezwort, with hoary serrated Leaves.

5. *PTARMICA incana, pinnulis cristatis.* T. Cor. Hoary Sneezwort, with crested Leaves.

6. *PTARMICA incana humilis, foliis laciniatis, absinthii æmulis.* H. L. Dwarf hoary Sneezwort, with jagged Leaves, resembling Wormwood.

7. *PTARMICA Alpina, foliis angustis, partim serratis, partim integris.* Bocc. Mus. Alpine Sneezwort, with narrow Leaves, Part of which are sawed on their Edges, and the other Part are whole.

8. *PTARMICA Cretica frutescens, santolinæ facie.* Inst. R. H. Shrubby Sneezwort of Crete, with the Appearance of Lavender-cotton.

9. *PTARMICA Orientalis, foliis*

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cristatis. Tourn. Cor. Eastern Sneezwort, with crested Leaves.

10. *PTARMICA Orientalis, foliis cristatis longioribus, & capitulis majoribus.* Tourn. Cor. Eastern Sneezwort, with longer crested Leaves, and larger Heads.

11. *PTARMICA Orientalis, santolinæ folio, flore majore.* Tourn. Cor. Eastern Sneezwort, with a Lavender-cotton-leaf, and a larger Flower.

12. *PTARMICA Orientalis, santolinæ folio, flore minore.* Tourn. Cor. Eastern Sneezwort, with a Lavender-cotton-leaf, and a smaller Flower.

13. *PTARMICA Orientalis, foliis tanaceti incanis, flore aureo.* Tourn. Cor. Eastern Sneezwort, with hoary Tansey-leaves, and a golden Flower.

14. *PTARMICA Orientalis, foliis tanaceti incanis, semiflosculis florum pallide luteis.* Tourn. Cor. Eastern Sneezwort, with hoary Tansey-leaves, whose Half-florets are of a pale-yellow Colour.

15. *PTARMICA Orientalis, foliis tanaceti incanis, semiflosculis florum brevioribus.* Tourn. Cor. Eastern Sneezwort, with hoary Tansey-leaves, whose Half-florets are very short.

16. *PTARMICA Orientalis, santolinæ folio, radice repente.* Eastern Sneezwort, with a Lavender-cotton-leaf, and a creeping Root.

17. *PTARMICA Orientalis, tanaceti folio & facie, flore minimo.* Tourn. Cor. Eastern Sneezwort, with the Leaf and Face of Tansey, and the least Flower.

18. *PTARMICA Orientalis incana, foliis pennatis, semiflosculis florum vix conspicuis.* Tourn. Cor. Hoary Eastern Sneezwort, with winged Leaves, and the Half-florets scarcely discernible.

19. *PTARMICA Orientalis, foliis argenteis conjugatis.* Tourn. Cor. East-
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ern Sneezwort, with silver conjugated Leaves.

All these Sorts of *Parmica* are hardy enough to endure the Cold of our ordinary Winters in the open Air, provided they are planted in a dry lean Soil; for when they are in a moist rich Soil, they grow very luxuriant in the Summer, and are filled with Juice; which renders them less capable to resist the Cold, than when they are more stunted and woody; and they make a much better Appearance, when they grow slowly, than if they were greatly encouraged in their Growth; because they appear more hoary, and produce a greater Number of Flowers.

The first of these Plants is very common upon Heaths, and in shady Places, in divers Parts of *England*; but is rarely cultivated in Gardens. This is the Sort directed for medicinal Use in the College Dispensatory.

The second Sort is a Variety of the first, which was accidentally obtain'd: the Flowers of this Kind are very double, and generally produced in large Bunches; which, together with its long Continuance in Flower, renders it worthy of a Place in every good Garden. This Sort propagates itself very fast by its Roots, which spread very far under-ground; so that it should not be planted too near other Plants, lest it over-run and destroy them.

The best time to transplant these Roots is in Autumn, that they may take Root before Winter: so that they will be in no Danger of suffering from Drought the Spring following; and will be capable of producing stronger Stalks, and a greater Quantity of Flowers.

This Plant always makes the best Appearance when its Roots are confin'd; because, when they are suf-

fer'd to spread, the Stalks come up thin and straggling; and the greatest Beauty of it is, to see it grow close in large Tufts: for which Reason many Persons choose to plant it in Pots fill'd with light sandy Earth; in which, if they are duly water'd in dry Weather, they will thrive exceedingly, and make a very handsome Appearance. It is also very proper to plant on such Borders as are gravelly and poor (on which few other things will thrive), where the Roots of this Plant will be confin'd, more than if planted in a better Soil, and they will flower very well.

The third and fourth Sorts are seldom preserv'd in Flower-gardens, being Plants of little Beauty: these may be propagated by parting their Roots, either in Spring or Autumn, and will grow upon almost any Soil, or in any Situation.

The fifth Sort was brought from the *Levant* by *Monf. Tournefort*; but was known long before. Many of the old Botanists were of Opinion, that the Seeds of this Plant were the *Semen Santonicum* of the Shops; but it is now generally believ'd to be the Seeds of some other Plant of this Kind: but however, this Plant deserves a Place in every good Garden, for the Variety of its silver-colour'd Leaves, together with its long Continuance in Flower.

It may be propagated by planting Cuttings during any of the Summer-months, upon a Bed of light Earth, observing to water and shade them until they have taken Root: after which they will require no farther Care, but only to clear them from Weeds, until *September* following, when they should be carefully taken up, preserving a Ball of Earth to the Roots of each Plant, and planted in a warm dry Situation: and if it be on a poor gravelly or rubbishing Soil,

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Soil, they will endure the Cold better, and make much more beautiful Plants: this Sort seldom perfects Seeds in *England*.

The other Sorts are all (except the sixteenth) propagated by Cuttings in the Summer-months; which should be planted in a shady Border of fresh Earth, and must be constantly watered, until they have taken Root; after which time they will require no farther Care but to keep them clear from Weeds, until *Michaelmas*, when they should be carefully taken up, and transplanted where they are design'd to remain; which must be done so early in the Autumn, that they may have time to get good Roots before the Frost comes on, otherwise they will be in Danger of suffering. The sixteenth Sort propagates greatly by its creeping Roots, therefore requires to be confin'd; otherwise it will spread, and intermix with whatever Plants grow near it. This is also a very hardy Plant; but being of humble Growth, makes no very good Figure in a Garden; so is seldom preserv'd, but by those Persons who are curious in Botany, for the sake of Variety.

Although these Plants do not produce very beautiful Flowers, yet they may be disposed in large Gardens, so as to make a very agreeable Diversity; for their hoary Leaves of different Shapes, when intermixed with other hardy Plants of the same Growth, on small Hillocks, will have a pretty Effect; and as they retain their Leaves all the Winter, at that Season they add to the Variety: and in Summer, when their Flowers are produced, they alter the Prospect so as to be very agreeable.

They are all of them low Plants; the tallest and most shrubby of them seldom rises above two Feet high,

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and the others not half so high; so that they should not be mixed with larger Plants, because those would overbear and destroy them. When these Plants are well rooted, they require no other Culture, but to keep them clear from Weeds; for their Roots will abide many Years, provided they are not destroyed by very severe Frosts, which seldom happen in *England*.

PTELEA, *Carolina* Shrub-trefoil.

The Characters are;

The Empalement of the Flower is one Leaf, cut into four acute Segments: the Flower is composed of four Petals, which spread open: in the Centre is placed the Pointal, which is flat and round, and is attended by four Stamina, each crown'd with roundish Summits: the Pointal afterward changes to a roundish membranaceous Fruit, like that of the Elm, in which is contained one taper Seed.

We have but one Species of this Genus; viz.

PTELEA. *Hort. Cliff. Carolina* Shrub-trefoil.

This Shrub was first taken notice of by Mr. Banister, who found it growing in *Virginia*, and mentions it in his Catalogue of Plants, by the Name of *Frutex Virginianus trifolius, ulmi samarris*. It hath since been found in plenty on the upper Part of the *Savannah* River, in *Carolina*, where the Shrubs grow to the Height of twelve or fourteen Feet. In *England* there are many of these Shrubs, which are upward of ten Feet high, and produce plenty of Flowers every Year. The Flowers are white, and grow in large Bunches at the Ends of the Shoots; these are succeeded by the membranaceous Seeds, which fall away, and never ripen here. There were some pretty large Shrubs of this Kind in some curious

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curious Gardens, which were destroyed in the severe Winter in 1749-50.; but they are so hardy, as to resist the Cold of our ordinary Winters very well in the open Air.

These Shrubs may be propagated by Cuttings, which should be planted in Pots of fresh rich Earth, and plung'd into a moderate Hot-bed. The best time for planting them is in the Beginning of *March*; but they must be carefully manag'd, so as not to have too much Heat, and shaded from the Sun in the Middle of the Day, otherwise they will not succeed. They may also be propagated by Layers; but these should be duly water'd, otherwise they will not take Root: but if good Seeds can be procur'd from abroad, the Plants raised from those will be much stronger, than those which are propagated by either of the former Methods.

These Seeds may be sown the Beginning of *April*, on a Bed of light Earth, in a warm-shelter'd Situation; where, if the Ground is moisten'd in dry Weather, the Plants will come up in five or six Weeks: but if the Seeds are sown in Pots, and placed on a very moderate Hot-bed, the Plants will come up sooner, and make greater Progress the first Year: but they must not be forc'd or drawn, for that will make them very tender; therefore in *June* the Plants should be expos'd to the open Air, in a shelter'd Situation, where they may remain till the Frost comes on; when those in the Pots should be either placed under a common Frame, to shelter them from severe Frost; or the Pots plung'd into the Ground, near an Hedge, that the Frost may be prevented from penetrating through the Sides of the Pots to the Roots of the Plants. The following Spring the Plants may be planted into a Nur-

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fery-bed, at about one Foot Distance, where they may grow two Years; by which time they will be fit to transplant where they are designed to remain.

PULEGIUM, Penroyal, or Pudden-grafs.

The Characters are; ♀

It hath a labiated Flower, consisting of one Leaf, whose upper Lip (or Crest) is intire; but the lower Lip (or Beard) is divided into three Parts: out of the Flower-cup rises the Pointal, attended by four Embryoes, which after-ward become so many Seeds: to which may be added, That the Flowers grow in short thick Whorles.

The Species are;

1. **PULEGIUM latifolium**. C. B. P. Common, or Broad-leav'd Penroyal.

2. **PULEGIUM Hispanicum erectum**, *staminibus florum extantibus*. Upright Spanish Penroyal, whose Stamina stand out from the Flowers.

3. **PULEGIUM angustifolium**. C. B. P. Narrow-leav'd Penroyal.

4. **PULEGIUM angustifolium, flore albo**. H. R. Pin. Narrow-leav'd Penroyal, with a white Flower.

The first of these Plants is very common on moist Heaths in divers Parts of *England*: this is the Sort recommended by the Physicians for medicinal Use. But the second Sort, although not a Native of *England*, hath so much obtain'd in the Gardens where medicinal Plants are cultivated, as to have quite superseded the other in the Markets, for its upright Growth, early Flowering, and more beautiful Appearance: but whether it is equally good for Use, I shall leave to those to whose Province it more immediately belongs to examine.

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The third Sort is also recommended to be used in Medicine : this is not of *English* Growth ; but is very hardy, and will thrive very well, if planted on a moist Soil ; as will also the fourth Sort, which is only a Variety of the third, from which it differs in nothing but the Colour of its Flowers.

All these Plants propagate themselves very fast by their Branches trailing upon the Ground, which emit Roots at every Joint, and fasten themselves into the Earth, and send forth new Branches ; so that no more is required in their Culture, than to cut off any of these rooted Branches, and plant them out in fresh Beds ; allowing them at least a Foot from Plant to Plant every Way, that they may have room to grow.

The best time for this Work is in *September*, that the Plants may be rooted before Winter ; for if the old Roots are permitted to remain so close together, as they generally grow in the Compass of a Year, they are subject to rot in Winter : besides, the young Plants will be much stronger, and produce a larger Crop the succeeding Summer, than if they were removed in the Spring : these Plants all love a moist strong Soil, in which they will flourish exceedingly.

PULMONARIA, Lungwort.

The Characters are ;

The Flower consists of one Leaf, which is shaped like a Funnel, whose upper Part is cut into several Segments : from the fistulous Flower-cup, which is, for the most part, pentagonal, rises the Pointal, encompassed by four Embryoes, which afterward become so many Seeds inclosed in the Flower-cup.

The Species are ;

1. PULMONARIA *vulgaris*, *maculoso folio*. *Clus. Hist.* Common spotted Lungwort, by some call'd Sage

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of *Jerusalem*, and *Jerusalem* Cowslip.

2. PULMONARIA *major*, *non maculosa*. *J. B.* Greater Lungwort, without Spots.

3. PULMONARIA *foliis echii*. *Lob. Ic.* Lungwort with Leaves like Vipers Bugloss.

4. PULMONARIA *maxima*, *foliis quasi saccharo incrustatis*. *Pluk. Phyt.* Greatest Lungwort, with Leaves very much spotted.

5. PULMONARIA *vulgaris latifolia*, *flore albo*. *Inst. R. H.* Common broad-leav'd Lungwort, with a white Flower.

6. PULMONARIA *Alpina*, *foliis mollibus subrotundis, flore cæruleo*. *Inst. R. H.* Alpine Lungwort, with soft roundish Leaves, and a blue Flower.

7. PULMONARIA *angustifolia*, *cæruleo flore*. *J. B.* Narrow-leav'd Lungwort, with a blue Flower.

8. PULMONARIA *Alpina*, *angustifolio*, *Italica*. *Bocc. Mus.* Narrow-leav'd Alpine Lungwort.

9. PULMONARIA *mitis*, *fragariæ odore*. *Bocc. Mus.* Mild Lungwort smelling like Strawberries.

10. PULMONARIA *Cretica annua*, *calyce vesicario*. *Inst. R. H.* Annual Lungwort of Candy, with a bladdered Flower-cup.

11. PULMONARIA *viridi*, *subrotundo, non maculato folio*. *Bocc. Mus.* Green Lungwort, with a roundish unspotted Leaf.

12. PULMONARIA *Chia*, *echii folio verrucosa*, *calyce vesicario, flore albo*. *Tourn. Cor.* Lungwort of the Island of Scio, with a warted Vipers-bugloss-leaf, a bladdered Flower-cup, and a white Flower.

13. PULMONARIA *Lesbia*, *echii folio verrucoso, calyce vesicario, flore cæruleo*. *Tourn. Cor.* Lungwort of Lesbos, with a warted Viper-bugloss-leaf, a bladdered Flower-cup, and a blue Flower.

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14. *PULMONARIA Orientalis, calyce vesicario, foliis echii, flore purpureo infundibuliformi.* Tourn. Cor. Eastern Lungwort, with a bladdered Flower-cup, a Vipers-bugloss-leaf, and a purple funnel-shap'd Flower.

15. *PULMONARIA Orientalis, calyce vesicario, foliis echii, flore albo infundibuliformi.* Tourn. Cor. Eastern Lungwort, with a bladdered Flower-cup, a Vipers-bugloss-leaf, and a white funnel-shap'd Flower.

16. *PULMONARIA calyce tubo corollæ brevior, perianthiis quinquepartitis.* Flor. Virg. American Lungwort, with a short Flower-cup, which is cut into five Segments, called in *America*, Mountain Cowslip.

The first Sort is used in Medicine as a vulnerary Herb, but is by many People preserv'd in Gardens; as are also the three other Sorts for the Variety of their spotted Leaves, and pretty Bunches of blue Flowers.

The first, second, third, fourth, fifth, sixth, seventh, eighth, and ninth Sorts are abiding Plants, which may be propagated by parting of their Roots. The best time for doing of this is in Autumn, that they may be rooted before the Frost comes on. They should have a shady Situation, and a fresh undung'd Soil; in which they will thrive better than on a rich Soil.

These Plants may be cultivated by parting of their Roots; which may be done either in the Spring or Autumn; but if the Ground be moist, into which they are planted, it is better to be done in the Spring; otherwise the Autumn is the most preferable Season, that the Plants may be well rooted before the dry Weather comes on in the Spring, which will cause them to flower much stronger.

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The Soil in which they are planted should not be rich; but rather a fresh light sandy Ground, in which they will thrive much better than in a richer Soil, in which they are very subject to rot in Winter.

The fourth Sort makes the best Appearance of all the Kinds, and is very hardy; will grow either in Sun or Shade; and, taking up little room, is worthy of a Place in every good Garden for the sake of Variety.

The sixteenth Sort is a Native of *America*, and is found in most Parts of *North America*. The Seeds of this Plant were formerly sent over from *Virginia*, by Mr. Banister: these were sown in the Garden of the Bishop of *London*, at *Fulham*, and in those of some other curious Persons, where the Plants were several Years preserv'd; but when the Possessors of those Gardens died, the Plants being neglected were lost; so that for several Years this Sort was not in *England*.

The Leaves of this Plant are smooth and intire; the Flowers are produced in a loose hanging Panicle, on the Top of the Stalks: these have long Tubes, stretched out beyond the Empalement; and, being of a fine blue Colour, they make a pretty Appearance. The time of this Plant's flowering in *England* is in *May*; and if the Plants are in a shady Situation, the Flowers will continue a Month in Beauty.

The Roots of this Plant are perennial, being composed of many thick fleshy Tubers, somewhat resembling those of Comfrey. The Leaves decay every Autumn, and new ones come out early in the Spring. The Flower-stems usually grow about one Foot and an half high; and the Flowers hang down much after the same manner as those of our common

mon spotted Lungwort ; but these are very rarely succeeded by Seeds in this Country, which occasions the present Scarcity of the Plants in England ; for they do not propagate fast by the Root.

This Plant should be planted in a shady Situation, but not under the Dropping of Trees ; and in dry Weather it will require to be frequently watered, otherwise it cannot be preserved in this Country. In the Winter, if the Frost should prove severe, it will be proper to lay some light Covering over the Roots, to prevent the Frost from penetrating deep into the Ground, which will be a sure Method to preserve them.

The other Sorts are annual, and propagated by Seeds only. The best time to sow these is in Autumn, soon after they are ripe ; for the Plants will resist the Cold of our Winters very well ; so will flower early the following Summer, and good Seeds may be obtained ; whereas those which are sown in the Spring, sometimes miscarry. These Seeds should be sown where they are design'd to remain ; for the Plants do not succeed very well, when they are transplanted. When the Plants come up, they require no other Culture, but to keep them clear from Weeds ; and where they are too close, to thin them. If these Plants are permitted to scatter their Seeds, the Plants will come up, and be better than when they are sown. All these Plants are preserv'd by the Curious in Botany ; but they have no great Beauty ; so are not often kept in other Gardens.

PULSATILLA, Pasque-flower.

The Characters are ;

The Flower consists of several Leaves, which are placed in a circular Order, and expand in form of a Rose ; out of which rises a Pointal,

beset, for the most part, with Chives ; which afterward becomes a Fruit, in which the Seeds are gather'd, as it were, into a little Head, each ending in a small Hair : to which must be added, Some little Leaves encompassing the Pedicle below the Flower, as in the Anemone ; from which the Pasque-flower differs, in the Seed ending in a Tail.

The Species are ;

1. PULSATILLA *folio crassiore, & majore flore.* C. B. P. Pasque-flower with thicker Leaves, and a larger Flower.

2. PULSATILLA *flore violaceo duplici fimbriato.* H. R. Par. Pasque-flower with a double fringed violet-colour'd Flower.

3. PULSATILLA *flore minore nigricante.* C. B. P. Pasque-flower with a smaller darker Flower.

4. PULSATILLA *flore rubro obtuso.* C. B. P. Red Pasque-flower.

5. PULSATILLA *flore albo.* C. B. P. White Pasque-flower.

6. PULSATILLA *lutea, apii hortensis folio.* C. B. P. Yellow Pasque-flower, with a Leaf of Garden-parsley.

7. PULSATILLA *lutea Alpina hispidiior.* C. B. P. Yellow hairy Pasque flower of the Alps.

8. PULSATILLA *folio tenuius inciso, & flore minore, sive palustris.* C. B. P. Marsh Pasque-flower, with fine-cut Leaves, and a smaller Flower.

9. PULSATILLA *folio tenuius inciso, seu palustris, flore dilutior.* H. R. Par. Marsh Pasque-flower, with a fine-cut Leaf, and a paler Flower.

10. PULSATILLA *apii folio, vernalis, flore majore.* C. B. P. Spring Pasque flower, with a Smaller leaf, and a larger Flower.

11. PULSATILLA *apii folio, vernalis, flore minore.* C. B. P. Spring Pasque-

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Pasque-flower, with a Smallage-leaf, and a smaller Flower.

12. PULSATILLA *apii folio, autumnalis*. C. B. P. Smallage-leaf'd Pasque-flower of the Autumn.

13. PULSATILLA *folio anemones secundæ, sive subrotundo*. C. B. P. Pasque-flower with a roundish Flower.

14. PULSATILLA *Pyrenaica, flore albo duplici*. H. R. Par. Pasque-flower of the Pyrenees, with a double white Flower,

15. PULSATILLA *lutea, pastinacæ sylvestris folio*. C. B. P. Yellow Pasque-flower, with a wild Parsnep-leaf.

16. PULSATILLA *Orientalis, tenuissime divisa & villosa, flore rubro*. Tourn. Cor. Eastern Pasque-flower, with an hairy finely divided Leaf, and a red Flower.

17. PULSATILLA *Africana, multifido flore, apii folio rigido*. Raii Supp. African Pasque-flower, with a multifid Flower, and a stiff Smallage-leaf.

The first of these Plants is common in divers Parts of England: it grows in great Plenty on Gogmagog Hills on the Left-hand of the Highway leading from Cambridge to Haveril, just on the Top of the Hill; also about Hildertham, six Miles from Cambridge; and on Bernack Heath not far from Stamford; and on Southrop Common adjoining thereto; also on mountainous and dry Pastures just by Leadstone Hall near Pontefract in Yorkshire. It flowers about the End of March, or the Beginning of April.

The other Sorts are less common in England, being all of them Natives of other Countries, and are only to be met with in some curious Gardens in England, where they are

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cultivated for the Beauty of their Flowers.

These Plants may be propagated by Seed, which should be sown in Boxes or Pots fill'd with very light sandy Earth; observing not to cover the Seeds too deep with Mould, which will prevent their rising; for they require no more than just to be cover'd. These Boxes should be placed where they may have the morning Sun until Ten of the Clock; but must be screen'd from it in the Heat of the Day: and if the Season proves dry, the Earth should be often refreshed with Water. The best time for sowing of these Seeds is in July, soon after they are ripe; for if they are kept till Spring, they seldom grow.

These Boxes or Pots, in which the Seeds are sown, should remain in this shady Situation until the Beginning of October, when they should be remov'd where they may enjoy the full Sun during the Winter-season: about the Beginning of March the Plants will begin to appear, at which time the Boxes should be again remov'd where they may have only the forenoon Sun; for if they are too much exposed to the Heat, the young Plants will die away. They should also be refreshed with Water in dry Weather, which will greatly promote their Growth; and they must be carefully preserved from Weeds, which, if suffer'd to grow amongst them, will in a short time destroy them.

When the Leaves of this Plant are intirely decay'd (which is commonly in July), you should then take up all the Roots, which, being nearly of the Colour of the Ground, will be difficult to find while small; therefore you should pass the Earth through a fine Wire-sieve, which is

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the best Method to separate the Roots from the Earth (but notwithstanding all possible Care taken, yet there will be many small Roots left ; so that the Earth should either be put into the Boxes again, or spread upon a Bed of light Earth to see what Plants will arise out of it the succeeding Year) : the Roots, being taken up, should be immediately planted again on Beds of fresh light sandy Earth, about three or four Inches asunder, covering them about three Inches thick with the same light Earth. The Spring following, most of these Plants will produce Flowers ; but they will not be so large and fair as in the succeeding Years, when the Roots are larger.

The Roots of these Plants generally run down deep in the Ground, and are of a fleshy Substance, somewhat like Carrots : so will not bear to be kept long out of the Ground ; therefore when they are removed, it should be done in Autumn, that they may take fresh Root before the Frost comes on ; for if they are transplanted in the Spring, they will not produce strong Flowers : these Plants thrive best in a loamy Soil ; for in very light dry Ground, they are very apt to decay in Summer.

The last Sort is tender ; therefore will not live thro' the Winter in England, unless it is sheltered from the Cold : wherefore these Plants must be planted in Pots, and in the Winter placed under a Frame, where they may be covered in bad Weather ; but they should have as much free Air as possible in mild Weather : they will do better under one of these Frames, than when they are placed in the Green house, because there the Plants draw up weak ; so do not produce their Flowers so strong, nor in so great Plenty, as

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when they have a greater Share of Air.

This Sort is propagated by Seeds, which should be sown in Pots of fresh Earth, soon after they are ripe, and placed in a shady Situation till Autumn ; when they should be removed where they may enjoy the Sun : and when the Nights begin to be frosty, the Pots must be placed under a Frame with the old Plants ; in the Spring the Plants will appear ; and after they have obtained Strength, they may be transplanted each into a separate Pot, and treated in the same manner as the old Plants.

PUMPION. *Vide* Pepo.

PUNICA, The Pomgranate tree.

The Characters are ;

The Flower consists of many Leaves, placed in a circular Order, which expand in form of a Rose, whose bell-shaped multifid Flower-cup afterward becomes a globular Fruit, having a thick, smooth, brittle Rind; and is divided into several Cells, which contain oblong hard Seeds, surrounded with a soft Pulp.

The Species are ;

1. PUNICA, *quæ malum granatum fert. Cæsalp.* The common Pomgranate.

2. PUNICA *fructu dulci. Tourn.* The sweet Pomgranate.

3. PUNICA *sylvestris. Cord. Hist.* The wild Pomgranate.

4. PUNICA *flore pleno majore. Tourn.* The double-flower'd Pomgranate.

5. PUNICA *Americana nana, seu humillima. Tourn.* The American dwarf Pomgranate.

The first of these Trees is now pretty common in the English Gardens, where formerly it was nursed up in Cases, and preserved in Green-houses with great Care (as was also the

the double flowering Kind); but they are both hardy enough to resist the severest Cold of our Climate in the open Air; and if planted against warm Walls, in a good Situation, the first Sort will often produce Fruit, which, in warm Seasons, will ripen tolerably well: but as these Fruits do not ripen till late in the Autumn, they are seldom well tasted in *England*; for which Reason the Sort with double Flowers is commonly preferr'd to it. The Sort with sweet Fruit, as also the wild Sort, are less common in the *English* Gardens than the former two.

These Plants may be easily propagated by laying down their Branches in the Spring, which in one Year's time will take good Root, and may then be transplanted where they are design'd to remain. The best Season for transplanting of these Trees is in Spring, just before they begin to shoot: they should have a strong rich Soil, in which they flower much better, and produce more Fruit, than if planted on a dry poor Earth: but in order to obtain these in plenty, there should be care taken in the Pruning of the Trees; for want of which, we often see these Trees very full of small Shoots; but do not find many Flowers produced upon them: therefore I shall set down Directions for pruning of these Trees, so as to obtain a great Quantity of Flowers and Fruit.

The Flowers of this Tree always proceed from the Extremity of the Branches which were produced the same Year: this therefore directs, That all weak Branches of the former Year should be cut out; and that the stronger should be shortened in proportion to their Strength, in order to obtain new Shoots in every Part of the Tree; these Branches may be

laid in against the Wall, about four or five Inches asunder; for, as their Leaves are small, there is not a Necessity of allowing them a greater Distance. The best time for this Work is about *Michaelmas*, or a little later, according to the Mildness of the Season: but if they are left until Spring before they are prun'd, they seldom put out their Shoots so early; and the earlier they come out, the sooner the Flowers will appear, which is of great Consequence where Fruit is desired. In Summer they will require no other Dressing, but to cut off very vigorous Shoots which grow from the Wall, and never produce Flowers (for they are the middling Shoots only which are fruitful); and when the Fruit is form'd, the Branches on which they grow, should be fastened to the Wall to support them; otherwise the Weight of the Fruit, when grown large, will be apt to break them down.

Tho', as I said before, the Fruit of this Tree seldom arrives to any Perfection in this Country, so as to render it valuable; yet, for the Beauty of its scarlet-coloured Flowers, together with the Variety of its Fruit, there should be one Tree planted in every good Garden, since the Culture is not great which they require: the chief Care is, to plant them upon a rich strong Soil, and in a warm Situation. Upon some Trees which had these Advantages, I have obtained a great Quantity of Fruit which have arrived to their full Magnitude; but I cannot say they were well flavour'd; however, they made a very handsome Appearance upon the Trees.

The double-flowering Kind is much more esteemed than the other in this Country, for the sake of its large fine double Flowers, which

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are of a most beautiful scarlet Colour; and, if the Trees are supplied with Nourishment, will continue to produce Flowers for near three Months successively, which renders it one of the most valuable flowering Trees yet known. This must be pruned and managed in the same manner as hath been already directed for the fruit-bearing Kind: but this Sort may be rendered more productive of its beautiful Flowers, by grafting it upon Stocks of the single Kind, which will check the Luxuriancy of the Trees, and cause them to produce Flowers upon almost every Shoot: by which Method I have had a low Tree, which was planted in the open Air, extremely full of Flowers, which made a very fine Appearance.

The dwarf Sort was brought into Europe from the warmest Parts of America, where the Inhabitants cultivate it in their Gardens for the Beauty of its Flowers, together with its continuing to produce Flowers and Fruit most Part of the Year: this Sort seldom grows above three Feet high. The Fruit of this Kind is rarely much larger than a Walnut, and not very pleasant to the Taste; so that 'tis rather cultivated for Shew, than for the sake of its Fruit.

This Plant may be propagated by Layers in the same manner as the former Sorts; but must be planted in Pots filled with rich Earth, and preserved in a Green-house; otherwise it is too tender to endure the Cold of our Winters; and in the Summer, when the Flowers begin to appear, if the Plants are exposed to the open Air, the Buds will fall off, and never open: so that it should not be exposed to the open Air, but placed in an airy Glass-case, giving them a large Share of Air every

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Day: but as they will be covered at Top, so the Flowers will expand, and the Fruit will grow to the full Size.

I have heard of a Sort of Pomgrate with double-striped Flowers, and have found it mentioned in some foreign Catalogues; but have not seen the Plant growing; tho' I believe it may be easily procured from Italy.

PURSLAIN. *Vide* Portulaca.

PYRACANTHA. *Vide* Mespilus.

PYROLA, Winter-green.

The Characters are;

It hath a rose-shaped Flower, consisting of several Leaves, which are placed circularly; out of whose Cup rises the Pointal, ending in a Proboscis; which afterward turns to a roundish Fruit, which is chanell'd, generally umbellated, and consisting of five Cells, which are commonly full of small Seeds.

The Species are;

1. PYROLA *rotundifolia major*. C. B. P. Great round-leav'd Winter-green.

2. PYROLA *rotundifolia minor*. C. B. P. Small round-leav'd Winter-green.

3. PYROLA *folio mucronato serrato*. C. B. P. Winter-green, with a pointed Leaf, sawed on the Edges.

4. PYROLA *frutescens, arbuti folio*. C. B. P. Shrubby Winter-green, with an Arbutus-leaf.

The first Sort grows wild in many Places in the North of England, on mossy Moors, Hills, and Heaths, as also in shady Woods; so that it is very difficult to preserve in Gardens, in the Southern Parts.

The other three Sorts are Natives of the Hills in Germany, Italy, and Hungary. These are all of them very difficult to cultivate in Gardens: for

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for as they grow on very cold Hills, and in a mossy moorish Soil, so when they are removed to a better Soil, and in a warmer Situation, they seldom continue long. The best time to transplant these Plants into Gardens, is about *Michaelmas*, provided the Roots can then be found; when they should be taken up with Balls of Earth to their Roots, and planted in a shady Situation, and on a moist undunged Soil, where they should be frequently watered in dry Weather, otherwise they will not thrive. Some of these Plants may be planted in Pots, which should be filled with Earth as nearly resembling that in which they naturally grow as possible; and place them in a shady Situation, where if they are constantly watered in dry Weather, they will thrive very well.

The Leaves of the first Sort are shaped like those of the Pear-tree, from whence the Name was given to it: these Leaves are of a deep-green Colour, and continue most Part of the Year; but there is no great Beauty in their Flowers; tho' for Variety they are admitted into many curious Gardens.

The first Sort is ordered by the College of Physicians to be used in Medicine, and is generally brought over from *Switzerland*, amongst other vulnerary Plants; amongst which Class this Plant is ranged; and by some hath been greatly commended.

PYRUS, The Pear-tree.

The Characters are;

The Flower consists of several Leaves, which are placed in a circular Order, and expand in form of a Rose; whose Flower cup afterward becomes a fleshy Fruit, which is more produced toward the Footstalks than the Apple; but is hollow'd like a Na-

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vel at the extreme Part: the Cells in which the Seeds are lodg'd, are separated by soft Membranes, and the Seeds are oblong.

The Species are;

1. PYRUS *sativa*, fructu *asivo parvo racemoso odoratissimo*. Tourn. Petit Muscat, *i. e.* Little Musk Pear, commonly called the Supreme. This Fruit is generally produced in large Clusters: it is rather round than long; the Stalk short; and, when ripe, the Skin is of a yellow Colour: the Juice is somewhat musky, and, if gathered before it is too ripe, is an excellent Pear. This ripens at the Beginning of *July*, and will continue good but for a few Days.

2. PYRUS *sativa*, fructu *asivo minimo odoratissimo*. Tourn. Poire de Chio, *i. e.* The Chio Pear, commonly called the Little Bastard Musk Pear. This is smaller than the former, but is in Shape pretty much like that: the Skin, when ripe, has a few Streaks of Red on the Side next the Sun; and the Fruit seldom hangs in Clusters, as the former; but in other respects is nearly like it.

3. PYRUS *sativa*, fructu *asivo parvo, e viridi albido*. Tourn. Poire Hâtiveau, *i. e.* The Hasting Pear: Poire Madeleine, ou Citron-des-Carmes: commonly called the Green Chiffel. This is a larger Pear than either of the former, and is produc'd more toward the Pedicle: the Skin is thin, and of a whitish-green Colour when ripe; the Flesh is melting, and, if not too ripe, of a sugary Flavour; but is apt to be mealy: this ripens the Middle of *July*.

4. PYRUS *sativa*, fructu *asivo partim saturate rubente, partim flavescente*. Tourn. Muscadelles Rouges, *i. e.* The Red Muscadelle. It is also called La Bellissime, *i. e.* The Fairest or Supreme. This is a large early Pear, of great Beauty: the Skin

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is of a fine yellow Colour, when ripe, beautifully striped with red; the Flesh is half melting, and has a rich Flavour, if gathered before it be too ripe; but it is apt to be mealy. This generally produces two Crops of Fruit in a Year: the first is commonly ripe about the Middle of July, and the second ripens in September; but this late Crop is seldom well-tasted.

5. *PYRUS sativa, fructu aestivo parvo flavescente moschato. Tourn.* Petit Muscat, *i. e.* The Little Muscat. This is a small Pear, rather round than long: the Skin is very thin, and when ripe, of a yellowish Colour: the Flesh is melting, and of a rich musky Flavour; but will not keep long when ripe. This comes the Middle of July.

6. *PYRUS sativa, fructu aestivo oblongo ferrugineo, carne tenera moschato. Tourn.* Cuisse Madame, Lady's Thigh, in England commonly called Jargonelle. This is a very long Pear, of a pyramidal Shape, having a long Footstalk: the Skin is pretty thick, of a russet-green Colour from the Sun; but toward the Sun it is inclined to an iron Colour; the Flesh is breaking, and has a rich musky Flavour: ripe the Middle of July. This is one of the best early Summer Pears yet known, and is certainly what all the French Gardeners call the *Cuisse Madame*, as may be easily observed by their Description of this Pear: but I suppose, that the Titles of this and the Jargonelle were changed in coming to England; and have been continued by the same Names.

7. *PYRUS sativa, fructu oblongo, e viridi flavescente.* The Windsor Pear. This is an oblong Fruit, which is produced toward the Crown; but near the Stalk is drawn toward a Point: the Skin is smooth,

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and, when ripe, of a yellowish-green Colour; the Flesh is very soft; and, if permitted to hang but two or three Days after it is ripe, it grows mealy, and is good for nothing.

8. *PYRUS sativa, fructu aestivo oblongo, e viridi albo.* The Jargonelle, now commonly called Cuisse Madame. This is certainly what the French Gardeners call the Jargonelle; which, as I before observed, is now, in England, given to another Fruit, much preferable to this; so that the two Names are changed; for the Jargonelle is always placed amongst those which the French call bad Fruit; and the Cuisse Madame is set down amongst their best Fruit; which is certainly the Reverse with us, as they are now named. This Pear is somewhat like the Windsor; but is produced more toward the Crown, and is smaller toward the Stalk: the Skin is smooth, of a pale-green Colour: the Flesh is apt to be mealy, if it stands to be ripe; but being a plentiful Bearer, is much propagated for the London Markets.

9. *PYRUS sativa, fructu aestivo globoso sessili moschato, maculis nigris confuso. Tourn.* Orange Musquée, *i. e.* The Orange Musk. This is a middle-siz'd Pear, of a short globular Form: the Skin is of a yellowish Colour, spotted with black; the Flesh is musky; but is very apt to be a little dry and choaky. It ripens the End of July.

10. *PYRUS sativa, fructu aestivo albido majori. Tourn.* Gros Blanquet, *i. e.* Great Blanket. This is also called La Muffette d'Anjou, *i. e.* The Bagpipe of Anjou. This is a large Pear, approaching to a round Form: the Skin is smooth, and of a pale-green Colour; the Flesh is soft, and full of Juice, which hath a rich Flavour; the Stalk is short, thick, and

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and spotted; the Wood is slender; and the Leaf is very much like that of the Tree called the Jargonelle. This ripens the End of July.

11. *PYRUS sativa, fructu æstivo albido saccharato odoratissimo. Tourn.* The Blanquette, or Musk Blanquette; the Little Blanquet Pear. This Pear is much less than the former, and more pinch'd in near the Stalk, which is also short, but slenderer than that of the former; the Skin is soft, and of a pale-green Colour; the Flesh is tender, and full of a rich musky Juice: the Wood of this Tree is much stronger than is that of the former, and the Shoots are commonly shorter. This ripens the End of July.

12. *PYRUS sativa, fructu albido, pediculo longo donato. Tourn.* Blanquette à longue queue, *i. e.* Long-stalk'd Blanquet Pear. This Pear is in Shape somewhat like the former; but the Eye is larger, and more hollow'd at the Crown; toward the Stalk it is somewhat plumper, and a little crooked: the Skin is very smooth, white, and sometimes toward the Sun is a little coloured: the Flesh is between melting and breaking, and is full of a rich sugary Juice. This ripens the Beginning of August.

13. *PYRUS sativa, fructu æstivo oblongo rufescente saccharato. Tourn.* Poire sans Peau, *i. e.* The Skinless Pear. It is also called Fleur de Guigne, *i. e.* Flower of Guigne; and by some, Rousselet hâtif, *i. e.* The Early Rousselet. This is a middle-sized Fruit, of a long Shape, and a redish Colour, somewhat like the Rousselet: the Skin is extremely thin; the Flesh is melting, and full of a rich sugary Juice; the Shoots are long and strait. This ripens the End of July.

14. *PYRUS sativa, fructu æstivo turbinato, carne tenera saccharata.*

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Tourn. Muscat Robine, *i. e.* The Musk Robine Pear. This is also called Poire à la Reine, *i. e.* The Queen's Pear; Poire d'Ambre, *i. e.* The Amber Pear; and Pucelle de Xaintonge, *i. e.* The Virgin of Xaintonge. This is a small round Pear, of a yellowish Colour when ripe; the Flesh is between melting and breaking; it has a rich musky Flavour, and is a great Bearer: it ripens the End of July.

15. *PYRUS sativa, fructu æstivo turbinato moscato. Le Bourdon* Mosque, *i. e.* The Musk Drone Pear. This is a middle-sized round Fruit, whose Skin is of a yellowish Colour when ripe; the Flesh is melting, and full of an high musky Juice: but it must not hang too long on the Tree, for it is subject to grow mealy in a short time. This ripens the End of July.

16. *PYRUS sativa, æstivo fructu globoso sessili, e viridi purpurascente saccharato odorato. Tourn.* Orange Rouge, *i. e.* The Red Orange Pear. This Pear hath been the most common of all the Sorts in France, which was occasioned by the general Esteem it was in some Years since. This is a middle-sized round Fruit, of a greenish Colour; but the Side next the Sun changes to a purple Colour when ripe; the Flesh is melting, and the Juice is sugar'd, with a little Perfume; the Eye is very hollow, and the Stalk is short. This ripens the Beginning of August.

17. *PYRUS sativa, fructu æstivo oblongo minori cinereo odorato. Tourn.* Cassiolette Friolet, Muscat verd Lechevrien. This is so called from its being shaped like a Perfuming-pot. It is a long Fruit, in Shape like the Jargonelle, of an Ash-colour; its Flesh is melting, and full of a perfumed Juice; but is very apt to rot in the Middle as soon as ripe;

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ripe ; otherwise it would be esteemed an excellent Pear. It is ripe the Beginning of *August*.

18. *PYRUS sativa, fructu æstivo turbinato, e viridi albido.* Orange Musquée, *i. e.* The Musk Orange Pear. This is a large round Pear, in Shape like a Bergamot : the Skin is green, and the Flesh is melting ; but it is very subject to rot upon the Tree, which renders it not near so valuable as some others. It ripens the End of *July*.

19. *PYRUS sativa, fructu æstivo globoso e viridi purpurascente.* Tourn. Gros Oignonnet, *i. e.* The Great Onion Pear. It is also called Amiréroux, *i. e.* Brown Admired ; and Roy d'Eté, *i. e.* King of Summer ; Archiduc d'Eté, *i. e.* The Summer Archduke. This is a middle-siz'd round Pear, of a brownish Colour next the Sun ; the Flesh is melting, and the Juice is passably good. This ripens the End of *July*.

20. *PYRUS sativa, fructu æstivo globoso sessili ex albido flavescente saccharato odorato.* Tourn. Robine. It is also called Muscat d'Aoust, *i. e.* The August Muscat ; Poire d'Averat, *i. e.* The Averat Pear ; and Poire Royale, *i. e.* The Royal Pear. This is a roundish flat Pear, in Shape very like a Bergamot : the Stalk is long, strait, and a little spotted, and the Eye is a little hollowed ; the Skin is smooth, and of a whitish-yellow Colour ; the Flesh is breaking, but not hard ; and its Juice is richly sugar'd and perfum'd : it is a great Bearer, and is esteemed one of the best Summer Pears yet known. It ripens in *August*.

21. *PYRUS sativa, fructu æstivo globoso sessili odorato.* Tourn. Poirerose ; *i. e.* The Rose-pear ; and L'Epine-Rose, *i. e.* The Thorny-Rose. This is a short round Fruit, shaped like the Great Onion Pear, but much larger ; of a

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yellowish green Colour ; but a little inclining to Red on the Side next the Sun : the Stalk is very long and slender ; the Flesh is breaking, and the Juice is musky. This ripens in *August*. The Shoots and the Leaves of this Tree are large.

22. *PYRUS sativa, fructu æstivo globoso albido saccharato.* Tourn. Poire du Pouchet. This is a large round whitish Pear, shap'd somewhat like the *Besideri* : the Flesh is soft and tender, and the Juice is sugary. This ripens the Middle of *August*.

23. *PYRUS sativa, fructu æstivo turbinato sessili saturatus rubente punctato.* Tourn. Poire de Parfum, *i. e.* The Perfum'd Pear. This is a middle-sized round Fruit, whose Skin is somewhat thick and rough, and of a deep-red Colour, spotted with brown : the Flesh is melting, but dry, and has a perfum'd Flavour. This ripens the Beginning of *August*.

24. *PYRUS sativa, fructu æstivo oblongo magno, partim rubro, partim albido, odorato.* Tourn. Bon-crétien d'Eté, *i. e.* The Summer Bon-crétien, or Good Christian. This is a large oblong Fruit, whose Skin is smooth and thin : the Side next the Sun is of a beautiful red Colour ; but the other Side is of a whitish-green : the Flesh is between breaking and tender, and is very full of Juice, which is of a rich perfum'd Flavour. It ripens the End of *August*.

25. *PYRUS sativa, fructu æstivo globoso, ex rubro albidoque flavescente saccharato odorato.* Tourn. Salviati. This Pear is pretty large, round, and flat, very much like the *Besideri* in Shape, but not in Colour : the Stalk is very long and slender, and the Fruit is a little hollow'd both at the Eye and Stalk ; the Colour is red and yellow next the Sun ; but on the other Side is whitish : the Skin is rough ;

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rough; the Flesh is tender; but a little soft, and has no Core; the Juice is sugary, and perfum'd, somewhat like the Robine; but is not near so moist. This ripens the End of August.

26. *PYRUS sativa, fructu aestivo globofo sessili rufescente odorato. Tourn. Caillot-rosat, i. e. Rose-water Pear.* This is a large round Pear, somewhat like the Messire - Jean, but rounder: the Stalk is very short, and the Fruit is hollow'd like an Apple, where the Stalk is produc'd: the Skin is rough, and of a brown Colour: the Flesh is breaking, and the Juice is very sweet. This ripens the End of August.

27. *PYRUS sativa, fructu aestivo longo, acerbitate strangulationem minitante. Tour. Poire d'Etrangillon, i. e. The Choaky Pear: the Flesh is red.* This is seldom preserved in Gardens; so there needs no Description of it.

28. *PYRUS sativa, fructu aestivo oblongo e ferrugineo rubente, nonnunquam maculato. Poire de Roufflet, i. e. The Russet Pear.* This is a large oblong Pear: the Skin is brown, and of a dark-red Colour next the Sun; the Flesh is tender and soft, without much Core: the Juice is agreeably perfum'd, if gather'd before it be too ripe: this produces larger Fruit on an Espalier than on Standard-trees. It ripens the End of August.

29. *PYRUS sativa, fructu aestivo subrotundo, partim rubro, partim flavesciente, odorato. Poire de Prince, i. e. The Prince's Pear.* This is a small roundish Pear, of a bright-red Colour next the Sun, but of a yellowish Colour on the opposite Side: the Flesh is between breaking and melting; the Juice is very high-flavour'd; and it is a great Bearer. This ripens the End of August; but will

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keep a Fortnight good, which is what few Summer-fruits will do.

30. *PYRUS sativa, fructu aestivo globofo viridi, in ore liquecente. Gros Mouille - bouche, i. e. The great Mouth-water Pear.* This is a large round Pear, with a smooth-green Skin: the Stalk is short and thick; the Flesh is melting, and full of Juice, if gathered before it be too ripe; otherwise it is apt to grow mealy. This ripens the Middle of August.

31. *PYRUS sativa, fructu aestivo rotunda sessili saccharato, e viridi flavesciente; Bergamotte d'Été, i. e. Summer - Bergamot.* This is by some called the Hamden's Bergamot. It is a pretty large round flat Pear, of a greenish - yellow Colour, and hollow'd a little at both Ends like an Apple: the Flesh is melting, and the Juice is highly perfum'd. This ripens the Middle of August.

32. *PYRUS sativa, fructu autumnali sessili saccharato odorato e viridi flavesciente, in ore liquecente. Tourn. Bergamotte d'Automne, i. e. The Autumn Bergamot.* This is a smaller Pear than the former, but is nearly of the same Shape: the Skin is of a yellowish Green, but changes to a faint Red on the Side next the Sun; the Flesh is melting, and its Juice is richly perfumed: it is a great Bearer, and ripens the Middle of September; and is one of the best Pears of the Season.

33. *PYRUS sativa, fructu autumnali turbinato viridi, striis sanguineis distincta. Tourn. Bergamot de Suisse, i. e. The Swiss Bergamot.* This Pear is somewhat rounder than either of the former: the Skin is tough, of a greenish Colour, striped with red; the Flesh is melting, and full of Juice; but it is not so richly perfumed as either of the former. This ripens the End of September.

34. *PYRUS*

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34. *PYRUS sativa, fructu autumnali suavissimo, in ore liquecente. Tourn.* Beurré rouge, *i. e.* The Red Butter-pear. It is called l'Amboise; and in Normandy, Isambert; as also Beurré gris, *i. e.* The Grey Butter; and Beurré vert, *i. e.* The Green Butter-pear. All these different Names of Beurrés have been occasioned by the Difference of the Colours of the same Sort of Pear; which is either owing to the different Exposure where they grew, or from the Stock; those upon Free-stocks being commonly of a browner Colour than those which are upon Quince-stocks; whence some Persons have supposed them to be different Fruits, tho' in Reality they are the same. This is a large long Fruit, for the most part of a brown Colour; the Flesh is very melting, and full of a rich sugary Juice. It ripens the End of September; and, when gathered from the Tree, is one of the very best Sort of Pears we have.

35. *PYRUS sativa, fructu autumnali turbinato sessili flavescente, & in ore liquecente. Tourn.* Le Doyenné, *i. e.* The Dean's Pear. It is also called by all the following Names; Saint Michel, *i. e.* Saint Michael; Beurré blanc d'Automne, *i. e.* The White Autumn Butter-pear; Poire de Neige, *i. e.* The Snow-pear; Bonne Ente, *i. e.* A good Graft; the Carlisle and Valentia. This is a large fair Fruit, in Shape somewhat like the Grey Beurré; but is shorter and rounder: the Skin is smooth, and, when ripe, changes to a yellowish Colour: the Flesh is melting, and full of Juice, which is very cold; but it will not keep good a Week after it is gathered, being very subject to grow mealy: it is a very indifferent Fruit. This is a great Bearer, and ripens the End of September.

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36. *PYRUS sativa, fructu autumnali longo viridique odorato, in ore liquecente. Tourn.* La Verte-longue, *i. e.* The Long-green Pear. It is also called Mouille-bouche d'Automne, *i. e.* The Autumn Mouth-water Pear. This is a long Fruit, which is very green when ripe: the Flesh is melting, and very full of Juice; which, if it grows upon a dry warm Soil, and upon a Free-stock, is very sugary; otherwise it is but a very indifferent Pear. It ripens the Beginning of October; but, some Years they will keep till December.

37. *PYRUS sativa, fructu autumnali tuberoso sessili saccharato, carne dura. Tourn.* Messire Jean blanc & gris, *i. e.* The white and grey Monsieur John. These, altho' made two Sorts of Fruit by many Persons, are indubitably the same; the Difference of their Colour proceeding from the different Soils and Situations where they grow, or the Stocks on which they are grafted. This Pear, when grafted on a Free-stock, and planted on a middling Soil, neither too wet, nor over-dry, is one of the best Autumn Pears yet known; but when it is grafted on a Quince-stock, it is very apt to be stony; or, if planted on a very dry Soil, is very apt to be small, and good for little, unless the Trees are watered in dry Seasons: which has rendered it less esteemed by some Persons, who have not consider'd the Cause of their Hardness; for when it is rightly manag'd, there is not any Pear in the same Season to be compared with it: this is a large roundish Fruit; the Skin is rough, and commonly of a brown Colour; the Flesh is breaking, and very full of a rich sugar'd Juice. It ripens the Beginning of October, and will continue good most Part of the Month.

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38. *PYRUS sativa, fructu autumnali globoso ferrugineo, carne tenera sapidissima. Tourn. Muscat fleuri, i. e.* The flower'd Muscat. It is also called *Muscat à longue queue d'Automne, i. e.* The Long-stalk'd Muscat of the Autumn. This is an excellent Pear, of a middling Size, and round; the Skin is of a dark-red Colour; the Flesh is very tender, and of a delicate Flavour. It ripens in the Middle of October.

39. *PYRUS sativa, fructu autumnali globoso ferrugineo, carne viscida. Tourn. Poire de Vigne, i. e.* The Vine-pear. This is a round Fruit, of a middling Size; the Skin of a dark-red Colour; the Flesh is very melting, and full of a clammy Juice, the Stalk is very long and slender. This Fruit should be gathered before it be full ripe; otherwise it grows mealy, and soon rots. It ripens the Middle of October.

40. *PYRUS sativa, fructu autumnali oblongo, dilute rufescente, saccharato, odoratissimo. Tourn. Poire Rouffeline, i. e.* The Rouffeline Pear. It is also called in Touraine, *Le Muscat à longue queue de la fin d'Automne, i. e.* The long-stalk'd Muscat of the End of Autumn. This is by some English Gardeners called the Brute-bonne: but that is a very different Fruit from this. It is shaped somewhat like the Rouffelet; but the Skin of this is smooth, and of a Greenish-yellow from the Sun; but the Side next the Sun is of a deep-red Colour, with some Spots of Grey; the Flesh is very tender and delicate; the Juice is very sweet, with an agreeable Perfume. It ripens the Beginning of October; but must not be long kept, lest it rot in the Middle.

41. *PYRUS sativa, fructu autumnali oblongo majori cinereo. Tourn. Poire Pendar, i. e.* The Knave's

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Pear. This is very like the Casslette Pear; but is somewhat larger; the Flesh is fine and tender: the Juice is very much sugar'd. It ripens the End of October.

42. *PYRUS sativa, fructu autumnali turbinato tuberoso viridi saccharato, in ore liquecente. Tourn. Sucre vert, i. e.* The Green Sugar-pear. This Pear is shaped like the Winter-thorn, but is smaller; the Skin is very smooth and green; the Flesh is very buttery; the Juice is sugar'd, and of an agreeable Flavour; but it is sometimes subject to be stony in the Middle, especially if grafted on a Quince-stock.

43. *PYRUS sativa, fructu autumnali tuberoso sessili, e viridi flavescente, maculis nigris consperso, carne tenera saccharata. Tourn. La Marquise, i. e.* The Marquis's Pear. This is often of two different Shapes, according to the Nature of the Soil where they are planted; for when the Soil is dry, the Fruit very much resembles a fine Blanquet; but when the Soil is very rich and moist, it grows much larger: it is a well-shaped Pear, flat at the Top; the Eye is small, and hollow'd; the Skin is of a greenish Yellow, a little inclining to Red on the Side next the Sun: if this Pear does not change yellow in ripening, it is seldom good; but if it does, the Flesh will be tender and delicate, very full of Juice, which is sugar'd. It ripens the End of October.

44. *PYRUS sativa, fructu autumnali oblongo, partim albido, partem rufescente. The Chat-brulé, i. e.* The Burnt Cat. It is also called Pucelle de Xaintonge, i. e. The Virgin of Xaintonge. This is a small oblong Pear, shap'd much like the Martin Sec; but differs from it in Colour: this being of a pale Colour on one Side, but of a dark-brown on the other;

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other; the Skin is smooth; the Flesh is tender, but dry; and, if kept a short time, is apt to grow mealy. It is in eating the Latter-end of *October*.

45. *PYRUS sativa, fructu autumnali globofo sessili, ex albido flavescente.* Le Besidéri. It is so called from *Heri*, which is a Forest in *Bretagne*, between *Rennes* and *Nantes*, where this Pear was found. This is a middle-siz'd round Pear, of a pale Green, inclining to a yellowish Colour; the Stalk is very long and slender; the Flesh is dry, and but very indifferent for eating; but it bakes well. It ripens the End of *October*.

46. *PYRUS sativa, fructu brumali sessili, e viridi flavescente, maculato, utrinque umbilicato, in ore liquescente.* Tourn. The Crasane, or Bergamot Crasane. It is also called Beurré Plat, *i. e.* The Flat Butterpear. This is a middle-siz'd Pear, hollow'd at the Crown like an Apple: the Stalk is very long and crooked; the Skin is rough, of a greenish-yellow Colour when ripe, covered over with a russet Coat; the Flesh is extremely tender, and buttery, and is full of a rich sugar'd Juice; and is the very best Pear of the Season. This is in eating the Beginning of *November*.

47. *PYRUS sativa, fructu brumali turbinato sessili flavescente saccharato odorato, in ore liquescente.* Tourn. Lansac ou la Dauphine, *i. e.* The Lansac or Dauphine Pear. This Pear is commonly about the Size of a *Bergamot*, of a roundish Figure, flat toward the Head; but a little produc'd toward the Stalk; the Skin is smooth, and of a yellowish-green Colour; the Flesh is yellow, tender, and melting; the Juice is sugar'd, and a little perfum'd; the Eye is very large, as is also the Flower; and

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the Stalk is long and strait. When this Pear is upon a Free-stock, and planted on a good Soil, it is one of the best Fruits of the Season; but when it is on a Quince-stock, or upon a very dry Soil, the Fruit will be small, stony, and worth little. It ripens the Beginning of *November*.

48. *PYRUS sativa, fructu brumali oblongo, partim intenso, partim dilute ferrugineo, saccharato, odorato.* Tourn. Martin Sec, *i. e.* The Dry Martin. This is sometimes called the Dry Martin of *Champagne*, to distinguish it from another Dry Martin of *Burgundy*. This Pear is almost like the *Roussellet* in Shape and Colour, which has occasioned some Persons to give it the Name of Winter *Russellet*. It is an oblong Pear, whose Skin is of a deep-russet Colour on one Side; but the other Side is inclining to a Red; the Flesh is breaking and fine; the Juice is sugar'd, with a little Perfume; and if grafted on a Free-stock, is an excellent Pear; but if it be on a Quince-stock, it is very apt to be stony. It is in eating the Middle of *November*; but if they were permitted to hang their full time on the Tree, will keep good two Months.

49. *PYRUS sativa, fructu brumali magno sessili, e cinereo flavescente.* Tourn. La Villaine d'Anjou, *i. e.* The Villain of Anjou. It is also called Poire Tulipée, *i. e.* The Tulip-pear; and Bigarrade, *i. e.* The Great Orange. This is a large round Pear, with a very long slender Stalk; the Skin is of a pale-yellow Colour; the Flesh is breaking, but not very full of Juice. This is in eating the Middle of *November*.

50. *PYRUS sativa, fructu brumali flavescente odoratissimo, pediculo crassiori.* Tourn. Poire de gros queue, *i. e.* The Large-stalk'd Pear. This is a large roundish Pear, with a yellow

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low Skin ; the Stalk is very thick, from whence it had the Name ; the Flesh is breaking and dry, and has a very musky Flavour ; but it is apt to be stony, especially if it be planted in a dry Soil, or grafted on a Quince-stock, as are most of the perfum'd Pears.

51. *PYRUS sativa, fructu brumali turbinato rufescente odorato.* L'Amadoté, *i. e.* The Amadot Pear. This is a middle-siz'd Pear, somewhat long, but flat at the Top ; the Skin is generally rough, and of a russet Colour ; the Flesh is dry, and high-flavour'd, if grafted on a Free-stock, The Wood of this Tree is generally thorny, and is esteemed the best Sort of Pears for Stocks to graft the melting Pears upon, because it gives them some of its fine musky Flavour. It is in eating the End of November ; but will keep good six Weeks.

52. *PYRUS sativa, fructu brumali, globoso, dilute virente, tuberoso, punctato, in ore liquecente.* Tourn. Petit Oin, *i. e.* Little Lard Pear. It is also called Bouvar and Roufette d'Anjou, *i. e.* The Russet of Anjou ; and Amadont, and Marveille d'Hyver, *i. e.* The Wonder of the Winter. This Pear is of the Size and Shape of the Ambret or Leschasserie ; but the Skin is of a clear green Colour, and a little spotted ; the Stalk is pretty long and slender ; the Eye is large, and deeply hollow'd ; the Flesh is extremely fine, and melting ; the Juice is much sugar'd, and has an agreeable musky Flavour. It is in eating the End of November, and most Part of December ; and is esteemed one of the best Fruits in that Season. This is better on a Free-stock than upon the Quince.

53. *PYRUS sativa, fructu brumali longo e viridi albicante, in ore li-*

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quescente. Tourn. Louisebonne, *i. e.* The Good Lewis Pear. This Pear is shaped somewhat like the St. Germain, or the Autumn Verte-longue ; but is not quite so much pointed ; the Stalk is very short, fleshy, and somewhat bent ; the Eye, and the Flower, are small ; the Skin is very smooth ; the Colour is green, inclining to a white when ripe ; the Flesh is extremely tender, and full of Juice, which is very sweet, especially when it grows upon a dry Soil ; otherwise it is apt to be very large and ill-tasted. It is in eating the Latter-end of November, and the Beginning of December.

54. *PYRUS sativa, fructu brumali, tuberoso, e viridi flavescente, punctato, saccharato.* Tourn. Poire de Colmar, *i. e.* The Colmar Pear. It is also called Poire Manne, The Manna Pear ; and Bergamotte tardive, The late Burgamot. This Pear is somewhat like a Bon crétien in Shape ; but the Head is flat ; the Eye is large, and deeply hollow'd ; the Middle is larger than the Head, and is slop'd toward the Stalk, which is short, large, and a little bent ; the Skin is green, with a few yellowish Spots ; but is sometimes a little coloured on the Side next the Sun ; the Flesh is very tender, and the Juice is greatly sugar'd. It is in eating the Latter-end of November ; but will often keep good till January ; and is esteemed one of the best Fruits of that Season.

55. *PYRUS sativa, fructu brumali, globoso, citriformi, flavescents, punctato, in ore liquecente, saccharato, odoratissimo.* Tourn. L'Eschasserie. It is also called Verte-longue d'Hyver, *i. e.* The Winter long-green Pear ; and Besidéri Landri, *i. e.* The Landry Wilding. This Pear is shaped like a Citron ; the Skin is smooth, and of a green Colour,

Lour, with some Spots while it hangs on the Tree ; but, as it ripens, it becomes of a yellowish Colour ; the Stalk is strait and long ; the Eye is small, and not hollow'd ; the Flesh is melting, and buttery ; the Juice is sugar'd, with a little Perfume. It is in eating the Latter-end of *November*, and continues good till *Christmas*.

56. *PYRUS sativa, fructu brumali longo, e viridi flavescente, in ore liquefcente, saccharato. Tourn.* Le Virgoulé, or La Virgouleuse. It is also called Bujaleuf, and Chambrette ; and Poire de Glasse, *i. e.* The Ice Pear, in *Gascoigne* ; but it is called *Virgoule*, from a Village of that Name in the Neighbourhood of *St. Leonard* in *Limoufin*, where it was raised, and sent to *Paris*, by the *Marquis of Chambret*. This Pear is large, long, and of a green Colour, inclining to yellow, as it ripens : the Stalk is short, fleshy, and a little bent ; the Eye is of a middling Size, and a little hollow'd ; the Skin is very smooth, and sometimes a little colour'd towards the Sun ; the Flesh is melting, and full of a rich Juice. It is in eating the Latter-end of *November*, and will continue good till *January* ; and is esteemed one of the best Fruits of the Season ; but the Tree is very apt to produce vigorous Shoots ; and the Blossoms being generally produc'd at the extreme Part of the Shoot, where they are shorten'd, the Fruit will be intirely cut away, which is the Reason it is condemn'd as a bad Bearer ; but when it is grafted on a Free-stock, it ought to be allowed at least forty Feet to spread : and, if upon a Quince-stock, it should be allowed upward of thirty Feet, and the Branches trained in against the *Espalier* or Wall, at full Length, in an horizontal Position, as they are pro-

duced. Where this Tree is thus treated, it will bear very plentifully.

57. *PYRUS sativa spinosa, fructu globofo, sessili, ferugineo, in ore liquefcente, saccharato, odoratissimo. Tourn.* Poire d'Ambrette. This is so called from its musky Flavour, which resembles the Smell of the Sweet Sultan Flower, which is called *Ambrette* in *France*. This Pear is like the *Leschasserie* in Shape, but is of a russet Colour ; the Eye is larger, and more hollow'd ; the Flesh is melting, and the Juice is richly sugar'd and perfum'd ; the Seeds are large and black, and the Cells in which they are lodg'd are very large ; the Wood is very thorny, especially when grafted on Free-stocks. The Fruit is in eating the Latter-end of *November*, and continues good till the Latter-end of *January* ; and is esteemed a very good Fruit by most People.

58. *PYRUS sativa, fructu brumali, magno, pyramidato, albedo, in ore liquefcente, saccharato, odorato. Tourn.* Epine d'Hyver, *i. e.* Winter-thorn Pear. This is a large fine Pear, nearly of a pyramidal Figure ; the Skin is smooth, and of a pale-green Colour, inclining to yellow as it ripens ; the Stalk is short and slender ; the Flesh is melting and buttery ; the Juice is very sweet ; and, in a dry Season, is highly perfumed ; but when it is planted on a moist Soil, or the Season proves wet, it is very insipid ; so that it should never be planted on a strong Soil. It ripens the End of *November*, and will continue good two Months.

59. *PYRUS sativa, fructu brumali longo, e viridi flavescente, in ore liquefcente. Tourn.* La Saint Germain, *i. e.* The *St. Germain* Pear. It is also called *L'Inconnüe de la Fare*, *i. e.* The Unknown of *La Fare* :

it being first discovered upon the Banks of a River which is called by that Name, in the Parish of *St. Germain*. This is a large long Pear, of a yellowish-green Colour when ripe; the Flesh is melting, and very full of Juice; which in a dry Season, or if planted on a warm dry Soil, is very sweet; but when it is planted on a moist Soil, the Juice is very apt to be harsh and austere; which renders it less esteemed by some Persons; tho' in general it is greatly valued. This is in eating the End of *November*; but will many times continue good till *Christmas*.

60. *PYRUS sativa, fructu brumali tuberoso subacido flavescente punctato. Tourn.* Saint Austin. This is about the Size of a middling *Virgoulé* Pear; but is some what shorter, and slenderer near the Stalk; the Skin is of a fine citron Colour, spotted with red on the Side next the Sun; the Flesh is tender, but not buttery; and is pretty full of Juice, which is often a little sharp; which to some Persons is disagreeable, but others value it on that Account. This is in eating in *December*; and will continue good two Months.

61. *PYRUS sativa, fructu brumali pyramidato, partim purpureo, punctis nigris consperso, flavescente. Tourn.* Bon-crétien d'Espagne, *i. e.* The Spanish Bon-crétien. This is a large Pear, of a pyramidal Form, of a fine red or purple Colour on the Side next the Sun, and full of small black Spots; the other Side is of a pale-yellow Colour; the Flesh is breaking; and, when it is on a light rich Soil, and grafted on a Free-stock, its Juice is very sweet. It ripens in the Beginning of *December*, and will continue good a Month, or six Weeks. If this be grafted on a Quince-stock, it is very apt to be dry and stony:

this is a very good Fruit for baking.

62. *PYRUS sativa, fructu brumali magno oblongo turbinato ferrugineo, utrinque umbilicato. Tourn.* Poire de Livre, *i. e.* The Pound Pear. It is also called Gros Ratteau Gris, *i. e.* The Grey-rak'd Pear; and Poire d'Amour, *i. e.* The lovely Pear. In England this is called *Parkinson's* Warden, or the Black Pear of *Worcester*. This is a very large Pear, each of which commonly weighs a Pound or more; the Skin is rough, and of an obscure red Colour on the Side next the Sun; but somewhat paler on the other Side; the Stalk is very short, and the Eye is greatly hollow'd. This is not fit for eating, but bakes or stews exceeding well; and is in Season from *November* to *Christmas*.

63. *PYRUS sativa, fructu brumali parvo flavescente, maculis rubris consperso. Tourn.* Bess de Cassoy, *i. e.* The Wilding of Cassoy, a Forest in *Bretagne*, where it was discovered, and passes under the Name of Rouffet d'Anjou. It is also called Petit Beurré d'Hyver, *i. e.* Small Winter Butter-pear. This is a small oblong Pear, of a yellowish Colour, spotted with red: the Flesh is melting, and the Juice is very rich. It is in eating in *December* and *January*. This is a prodigious Bearer, and commonly produces its Fruit in large Clusters, provided it be not too much pruned; for it generally produces its Blossom buds at the Extremity of its Shoots; which if shortened, the Fruit would be cut away. There was a Tree of this Kind in the Gardens of *Camden-House*, near *Kensington*; which generally produced a great Quantity of Fruit.

64. *PYRUS sativa, fructu brumali turbinato inæquali, ventre tumido, partim*

partim purpureo, partim flavescente. Tourn. Ronville. It is also called Hocrenaille and Martin-fire, *i. e.* The Lord Martin Pear. This Pear is about the Size and Shape of a large Rouffelet; the Eye is of a middling Size, and hollow'd a little; the Middle of the Pear is generally swell'd more on one Side than on the other; but is equally extended toward the Stalk; the Skin is very smooth and soft, and is of a lively-red Colour next the Sun; but on the other Side it changes yellow as it ripens: the Flesh is breaking, and full of Juice, which is very sweet, and a little perfum'd; but if grafted on a Quince-stock, is very apt to be small and stony.

65. *PYRUS sativa, fructu brumali citriformi flavescente duro moschato odoratissimo.* Tourn. Citron d'Hyver, *i. e.* The Winter Citron Pear. It is also called the Musk Orange Pear, in some Places. This is a pretty large Pear, in Shape and Colour very like an Orange or Citron, from whence it had its Name: the Flesh is hard and dry, and very subject to be stony; for which Reasons it is not valued as an eating Pear; but will bake very well. It is in Season from December to March.

66. *PYRUS sativa, fructu brumali oblongo, e viridi flavescente, saccharato, saporis austeri.* Tourn. Rouffelet d'Hyver, *i. e.* The Winter Rouffelet. This is by some supposed to be the same Pear as is called the Dry Martin; but it is very different from that in several Particulars: the Colour of this is a greenish Yellow, inclining to brown; the Stalk is long and slender, and the Flesh is buttery and melting, and generally full of Juice, which is very sweet; but the Skin is apt to contain an austere Juice; so that if it be not pared, it is apt to be disagreeable to many

Persons Palates. It is in eating in January and February.

67. *PYRUS sativa Pictaviensis, fructu brumali globoso sessili saccharato odorato.* Tourn. Poire Portail, *i. e.* The Gate Pear. This Pear was discovered in the Province of Poitou; where it was so much esteemed, that they prefer'd it to most other Fruit; tho', in the Opinion of most curious Judges, it does not deserve the great Character which is given to it; for it rarely happens, that it proves good for eating, being generally dry, stony, and hard, unless in extraordinary Seasons, and upon a very good Soil. This must always be grafted on a Free-stock, and should be planted on a light rich Soil; and in very dry Seasons the Trees should be watered, otherwise the Fruit will be stony. It is in Season from January to March, and bakes well.

68. *PYRUS sativa, fructu brumali magno globoso flavescente, punctis rufis consperso.* Tourn. Franc-real. It is also called Fin-or d'Hyver, *i. e.* The Golden-end of Winter. This is a very large Pear, almost of a globular Figure; the Skin is yellow, spotted with red; the Stalk is short, and the Wood of the Tree pith: the Flesh of this Pear is dry, and very apt to be stony; but it bakes exceeding well, and continues good from January till March.

69. *PYRUS sativa, fructu brumali turbinato sessili subacido flavescente, punctis asperioribus consperso.* Tourn. Bergamotte Bugi. It is also called Bergamotte de Pasque, *i. e.* The Easter Bergamot. It is a large Pear, almost round; but is a little produced in Length towards the Stalk; the Eye is flat, and the Skin is green, having many rough Protuberances like Spots dispersed all over; but, as it ripens, becomes yellowish; the Flesh is breaking, and in a good Season

Season the Juice is sweet; but it must have a Free-stock, and South-east Wall, and have a good Soil; otherwise it is apt to be stony and austere. It is in eating from *February* till *April*.

70. LE MUSCAT D' ALLEMAN, *i. e.* The German Muscat. This is an excellent Pear, more long than round, of the Shape of the Winter-royal; but is less toward the Eye, and is more russet, and of a red Colour next the Sun; it is buttery, melting, and a little musky. This is in eating in *March*, *April*, and sometimes in *May*, when it keeps so long.

71. LE BERGAMOTTE D' HOLLANDE, *i. e.* The Holland Bergamot: it is large and round, of the Shape of the ordinary Bergamot, but a little more produced toward the Stalk. The Colour is greenish; the Flesh is half-buttery and tender; the Juice is highly flavoured. This is a very good Pear, and will keep till *April*.

72. LE POIRE DE NAPLES, *i. e.* The Pear of Naples. This is a pretty large, long, greenish Pear; the Flesh is half-breaking; the Juice is sweet, and a little vinous. It is in eating in *March*. I am in doubt whether this Pear is not in some Places taken for a *Saint Germain*; for there is a Pear in some Gardens very like the *Saint Germain*, which will keep till *April*; and this Pear agrees with the Characters of that. It is called in England *The Easter St. Germain*.

73. PYRUS *sativa*, fructu brumali magno pyramidato, e flavo nonnihil rubente. Tourn. Bon-crétien d' Hyver, *i. e.* The Winter Bon-crétien Pear. This Pear is very large and long, of a pyramidal Figure; the Skin is of a yellowish Colour; but the Side next the Sun inclines to a soft Red; the Flesh is tender and

breaking, and is very full of rich sugar'd Juice. This is esteemed in France one of the best Winter Pears; but in England it is seldom so good; tho' I am fully satisfied, if it were grafted on a Free-stock, and planted in a good Soil, against a Wall exposed to the South-east, and the Branches train'd at full Length, it might be render'd more acceptable than it is at present in England.

74. PYRUS *sativa*, fructu brumali magno, cydoniæ facie, partim flavo, partim purpureo. Tourn. Catillac or Cadillac. This is a large Pear, shaped somewhat like a Quince; the Skin is, for the most part, of a yellow Colour, but changes to a deep Red on the Side next the Sun; the Flesh is hard, and the Juice austere; but it is a very good Fruit for baking; and being a plentiful Bearer, deserves a Place in every good Collection of Fruit. It will be good from *Christmas* to *April*, or longer.

75. PYRUS *sativa*, fructu brumali oblongo flavescente, punctis rubris consperso. La Pastorelle. This Pear is of the Size and Shape of a fine Rouffelet; the Stalk is short and crooked; the Skin is somewhat rough, of a yellowish Colour, spotted with Red; the Flesh is tender and buttery; and when it grows on a dry Soil, the Juice is very sweet; but on a wet Soil, or in moist Years, it is subject to have an austere Taste. This Pear is in eating in *February* and *March*.

76. PYRUS *sativa*, fructu brumali sessili, partim flavescente, partim purpurascete. Tourn. La Double Fleur, *i. e.* The double-flowering Pear. This is so called, because the Flowers have a double Range of Petals or Leaves. It is a large short Pear; the Stalk is long and strait; the Skin is very smooth, and of a yellowish Colour; but the Side next

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the Sun is commonly of a fine red or purple Colour. This is by some esteemed for eating; but it is generally too austere in this Country for that Purpose. It is the best Pear in the World for Baking or Composts. It is good from *February* to *May*.

77. *PYRUS sativa, fructu brumali oblongo, partim flavescente, partim purpurascente.* Saint Martial. It is also called in some Places Poire Angelique, *i. e.* The Angelic Pear. This Pear is oblong, in Shape like the Bon-crétien; but not so large, and a little flatter at the Crown; it has a very long Stalk; the Skin is smooth and yellowish; but on the Side next the Sun it turns to a purplish Colour; the Flesh is tender and buttery, and the Juice is very sweet. This is in eating in *February* and *March*, and will keep very long.

78. *PYRUS sativa, fructu brumali oblongo, partim albido, partim purpureo odorato, saccharato.* La Poire de Chaumontelle, or Bess de Chaumontelle, *i. e.* The Wilding of *Chaumontelle*. This Pear is in Shape somewhat like the Autumn Beurré, but is flatter at the Crown: the Skin is a little rough, of a pale-green Colour; but turns to a purplish Colour next the Sun; the Flesh is melting; the Juice is very rich, and a little perfum'd. It is in eating from *November* to *January*; and is esteemed by some as the best late Pear yet known.

79. *PYRUS sativa, fructu brumali globoso sessili cinereo, maculis amplis obscurioribus consperso.* Tourn. Carmelite. This is a middle-siz'd Pear, of a roundish Form; the Skin is of a grey Colour on one Side; but is inclining to a red on the other, having some broad Spots of a dark Colour all over; the Flesh is commonly hard and dry, so that it is not ve-

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ry much esteemed: it is in Season in *March*.

80. *PYRUS sativa, fructu brumali maximo pyramidato, dilute virente.* The Union Pear; otherwise called Dr. Uvedale's St. Germain. This is a very large long Pear, of a deep-green Colour; but the Side next the Sun doth sometimes change to a red as it ripens. This is not fit for eating, but bakes very well; and being a great Bearer, and a very large Fruit, deserves a Place in every good Collection. It is in Season from *Christmas* to *April*.

There are many other Sorts of Pears, which are still continued in some old Gardens; but as those here mentioned are the best Sorts known at present, it would be needless to enumerate a great Quantity of ordinary Fruit; since every one who intends to plant Fruits, will rather choose those which are the most valuable, the Expence and Trouble being the same for a bad Sort of Fruit as a good one. Indeed I have inserted many more than are really worth planting, in order to please such who are fond of a great Variety: but whoever hath a mind to make choice of such only as are good, may easily distinguish them, by attending to the Account given of each Sort; and hereby every Person is at Liberty to please himself; for it is not every one who prefers a Beurré Pear, tho' that is generally esteemed the very best in its proper Season: there are some who admire the Messire Jean for the Firmness of its Flesh, which to others is a great Objection against it; so that as some esteem the breaking, and others the melting Pears, I have distinguished them by their Descriptions in such a manner, that every one may make choice of the Kinds of Fruit which are agreeable to their Palates;

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Palates ; and the different Seasons in which each Kind is in eating, being exhibited (allowing a little for the Difference of Seasons, which are earlier some Years than others), it is not very difficult for a Person to make a Collection of good Pears to succeed each other throughout the Season of these Fruits, both for eating and baking.

The Time of each Fruit ripening, as here set down, is taken at a Medium for seven Years, and in the Neighbourhood of *London*, where all Sorts of Fruit generally ripen a Fortnight or three Weeks earlier than in almost any Part of *England* ; and it is very obvious to every Person, who will attend to the Culture of Fruit-trees, that their Time of ripening is accelerated by long Cultivation ; for many of the Sorts of Pears, which some Years past rarely became ripe in *England*, unless they grew against the best aspected Walls, are now found to ripen extremely well on *Espaliers* and *Dwarfs* ; and those Pears which seldom were in eating till *January*, are ripe two Months earlier : there is also a very great Difference in their time of ripening in different Seasons ; for I have known the Fruit of a Pear-tree in one Year all ripe and gone by the Middle of *October* ; and the very next Year the Fruit of the same Tree has not been fit to eat till the End of *December* ; so that Allowance should be made for these Accidents. The *Bess de Chaumontelle* Pear, about thirty Years past, was seldom fit to eat before *February* ; and has continued good till the Middle of *April* : but now this Pear is commonly ripe in *November* ; and when it is planted on a warm Soil, and against a good-aspected Wall, it is in eating the Middle of *October*. This forwarding of the several kinds

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of Pears may be in some measure owing to the Stocks upon which they are grafted ; for if they are grafted upon early Summer Pear-stocks, they will ripen much earlier than when they are upon hard Winter Pear-stocks : and if some of the very soft melting Pears were grafted upon such Stocks as are raised from the most austere Fruit, such as are never fit to eat, and of which the best Perry is made, it would improve those Fruits, and continue them much longer good ; or if the common Free-stocks were first grafted with any of these hard Winter Pears. and when they have grown a Year, then to graft or bud these soft melting Pears upon them, it would have the same Effect ; but the Pears so raised will require a Year's more Growth in the Nursery ; and consequently cannot be sold at the same Price as those which are raised in the common Method, these requiring to be twice budded or grafted ; so that there is double Labour, beside standing a full Year longer : but this Difference in the first Expence of the Trees is not worth regarding by any Person who is desirous to have good Fruit : for the setting out in a right way is that which every one should be the most careful of ; since by mistaking at first, much time is lost ; and an After-expence of new Trees often attends it.

Another Cause of Fruits ripening earlier now, than they formerly did, may be from the Length of time they have been cultivated ; for it is very certain, that most Sorts of Plants have been greatly forwarded and improved by Culture, within the Space of thirty or forty Years, as may be known from the several Sorts of esculent Plants, which are cultivated in the Kitchen-gardens ; and of which Sorts there are many which

are annually improving: and if we look back to the best *French* Authors, who have written on the Subject of Fruit-trees, we shall find, that the times of ripening of many Sorts of Pears are put down a Month or six Weeks later about fifty Years ago, than they are now found to ripen about *Paris*: and here about *London* it is much the same; for I cannot find they are the least forwarder in the times of their ripening at *Paris*, than at *London*.

The ripening of these Fruits may also be accelerated by the Method of pruning and managing these Trees, which are greatly improved within the Space of a few Years past; for if we look into the Directions which are given by the best Writers on this Subject, we shall soon discover how little they knew forty Years ago, of the true Method of pruning and managing all Sorts of Fruit-trees, scarce one of them making any Difference in the Management of the different Kinds of Fruit.

Pears are propagated by budding or grafting them upon Stocks of their own Kind, which are commonly called Free-stocks, or upon Quince-stocks, or White-thorn; upon all which these Fruits will take; but the latter Sort of Stock is now seldom used, because they never keep Pace in their Growth with the Fruit budded or grafted upon them; as also because the Fruit upon such Stocks are commonly drier, and more apt to be stony, than when they are upon Pear-stocks. Quince-stocks are greatly used in the Nurseries for all Sorts of Pears which are designed for Dwarfs or Walls, in order to check the Luxuriancy of their Growth, so that they may be kept within Compass better than upon Free-stocks. But against the general Use of these Stocks, for all Sorts

of Pears indifferently, there are very great Objections: 1st, Because some Sorts of Pears will not thrive upon these Stocks, but in two or three Years will decay, or at most will but just keep alive. 2dly, Most of the Sorts of hard breaking Pears are rendered stony, and good for little; so that whenever any of these Sorts are thus injudiciously raised, the Fruit, altho' the Kind be ever so good, is condemn'd as good for nothing, by such as are not well acquainted with it, when the Fault is intirely owing to the Stock on which it was grafted. On the contrary, most melting buttery Pears are greatly improved by being upon Quince-stocks, provided they are planted on a strong Soil: but if the Ground be very dry and gravelly, no Sort of Pear will do well upon Quince-stocks in such Places.

These general Directions being given, there is no Occasion to repeat any Part of the Method in which these Stocks are raised, and the Fruits budded or grafted thereon; which has been already mentioned under the Article of *Nurseries*.

The Distance which these Trees shold be planted either against Walls or Espaliers, must not be less than thirty Feet: but if they are planted forty Feet, it will be better; for if they have not room to spread on each Side, it will be impossible to preserve them in good Order, especially those on Free-stocks; for the more these Trees are pruned, the more they will shoot; and, as I before said, many Sorts of Pears produce their Blossom-buds first at the Extremity of the former Year's Shoots, so that when they are shorten'd, the Fruit will be cut away; and this cannot be avoided, where the Trees have not room allow'd in their first planting.

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This Distance, I doubt not, will be objected to, by many who have not fully attended to the Growth of these Trees; especially as it hath been the general Practice of most Gardeners, to plant these Trees at less than half the Distance which is here mention'd: but whoever will be at the Trouble to view any of these Trees which have been some Years standing, will always find, where by Accident one of these Trees has been planted against a Building, where the Branches have had room to spread, that this Tree has produc'd more Fruit than twelve Trees which have been crouded close, and have not had room for their Branches to extend. There are some Pear-trees now growing which spread more than fifty Feet in Length, and are upward of twenty Feet high, which produce a much greater Quantity of Fruit than, if there had been three Trees they would have done, in the same room, as there are Examples enough to prove, where Trees are planted against Houses, and the Ends of Buildings, at about twelve Feet, or much less Distance; because there is Height of Walling for them to grow: which is the Reason commonly given by those who plant these Trees so close together. But one Tree will bear more Fruit, when the Branches are train'd horizontally, than three or four Trees, whose Branches are led upright: and there never can be any Danger of the upper Part of the Wall being left naked or unfurnish'd; for I have seen a Pear-tree which has spread more than fifty Feet in Width, and cover'd the Wall upward of thirty-six Feet in Height. This was a Summer *Ban-crétien* Pear, and was extremely fruitful, which rarely happens to this Sort when they are not allow'd a large Share of room. The

finest Tree of this Sort of Pear which I ever have seen, was a large Standard-tree, in my own Possession, whose Stem was not more than ten Feet high, where the Branches came out regularly on every Side, and extended near thirty Feet from the Trunk, many of which were by the Weight of the Fruit in Summer brought down to the Ground; so were obliged to be supported with Poles all around the Tree toward the Extremity of the Branches, to prevent their lying upon the Ground; and this Tree had its Branches so dispos'd as to form a natural Parabola of forty Feet in Height, bearing from the lowest to the highest Branches: so that in a kindly Season, when the Blossoms escaped the Frost, it hath produc'd upward of two thousand Pears; which were much better flavour'd than any of the same Sort, which I have yet tasted. This Instance I mention, only to shew how much one of these Trees will spread, if proper room is allowed it; and also to observe, that as the Branches of this Tree had never been shorten'd, so they were fruitful to their Extremities. This shews the Absurdity of the *French* Gardeners, who do not allow more than ten or twelve Feet Distance to these Trees; and some of their most approved Writers on this Subject have advis'd the planting an Apple-tree between the Pear-trees, where they are allowed twelve Feet; and yet these Authors afterward say, that a good Pear-tree will shoot three Feet each Way in one Year: therefore, according to their own Account, the Trees so planted must have their Branches meet together in two or three Years at most; and what must be the Case with such Trees, in five or six Years, is not difficult to know. But this Method

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of Planting has not been peculiar to the *French*; for most of the Gardens in *England* have been little better planted. Indeed, those Persons who were intrusted with the making and planting most of the *English* Gardens, had little Skill of their own; so were obliged to follow the Directions of the *French* Gardeners; of whom they had so great an Opinion, as to get their Books translated; and to these have added some trifling Notes, which rather betrays their Weakness: for where they have objected to the little room which their Authors had allowed to these Trees, they have, at the most, allow'd them but three Feet more: from which it is plain, they had not consider'd the natural Growth of the Trees; and whoever departs from Nature, may be justly pronounc'd an unskilful Gardener.

As most of the *English* Gardens have been made and planted by Persons of little Judgment, it is very rare to find any of them which produce much Fruit; for although many of these Gardens have been totally altered, and new-planted, yet they have seldom been much alter'd for the better; and the Possessors have been put to the Expence of removing the old Trees, also the Earth of their Borders, and to purchase new Trees, which have been planted perhaps a Foot or two farther asunder, than the old Trees, which were remov'd: so that when the young Trees have grown a few Years, they were in the same Condition as the old, and it has been the Loss of so many Years to the Owner. But this will constantly be the Case, when it is the Interest of the Persons employ'd, who can sell so many young Trees; and the planting of three times the Number of Trees in a Garden, more than is proper, may in some

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measure be ascrib'd to the same; though, in many Instances, I should be inclinable to think it has proceeded from Ignorance, rather than Design.

But where Fruit-trees have been thus injudiciously planted, if the Stocks are healthy and good, the best way to recover this Loss is, to dig up two or three, and leave every third or fourth Tree, according to the Distance which they were planted; and spread down the Branches of those which are left horizontally, I mean, all such as are capable of being so brought down; but those which are too stubborn for this, should be cut off near the Stem, where there will be new Shoots enough produced to furnish the Wall or Espalier: and if the Sort of Fruit is not the same as desired, the young Branches may be budded the same Summer, or grafted the following Spring, with any other Sort of Pear; and hereby many Years may be saved; for one of these old Trees will spread to a much greater Length, and produce more Fruit, when thus managed, in three Years, than a new Tree will in ten or twelve; especially if the Ground is mended. This is a Method which I have practis'd with great Success, where I have been employed to amend the Blunders of these great Gardeners, as they are stiled; and hereby the Walls and Espaliers have been well furnish'd in a few Years.

But the next thing to be done, after being furnish'd with proper Trees, is the preparing of the Ground to receive them; in doing which, there should be great Regard had to the Nature of the Soil where the Trees are to grow: for if it is a strong stiff Land, and subject to Wet in the Winter, the Borders should be raised as much above the Level of the

the Ground as you conveniently can. And if under the good Soil there is a sufficient Quantity of Lime, Rubbish, or Stones, laid, to prevent the Roots of the Trees from running downward, it will be of great Service to the Trees. The Borders for these should not be less than eight Feet broad; but if they are twelve, it will be still better. And as these Borders may be planted with such Sorts of esculent Plants as do not grow large, or whose Roots do not grow deep, or mat together on the Surface, these will do no Harm to the Pear-trees; for these are not so nice in their Culture as Peach and Nectarine-trees; so the turning of the Ground, and mending of it, for these Crops, will rather improve, than injure the Trees; provided the Plants do not shade the Trees, or are not suffer'd to stand too long upon the Borders. But all the Cabbage-kind, as also Beans, should be excluded from these Borders; because they root deep in the Ground, and draw much Nourishment from the Trees.

But if the Soil is shallow, and the Bottom is either Gravel or Chalk, there must be a sufficient Depth of good Earth laid upon the Borders, so as to make them two Feet and an half deep; for if the Ground is not of this Depth, the Trees will not thrive well. And in doing of this, I must caution every Person not to dig out the Gravel in a Trench (as is by some practis'd), and fill this Trench with good Earth; for by so doing, when the Roots of the Trees are extended to the Width of the Trench, they will meet with the Gravel, which will stop them; so that they will be confin'd, as if they were in Tubs of Earth, whereby the Trees will be soon spoiled: therefore when the Gravel or Chalk is re-

moved, it should be intirely taken away over the whole Garden: otherwise it will be better to raise the whole Border above it.

If the Garden is to be new-made from a Field, then all the good Earth on the Surface should be carefully preserved; and if the good Ground is taken out where the Walks are design'd to be made, and laid upon the Borders, or in the Quarters, it will add to the Depth of the Soil, and save Expence in bringing in of new Earth. If the Ground can be prepared one Year before it is planted, the Trees will thrive the better; for by laying the Ground in Ridges, and turning it over two or three times, it will loosen the Soil, and render it much better for planting: but in trenching, or plowing of the Ground, there should be great Care taken not to go deeper than the Ground is good; otherwise all the good Soil will be buried below the Roots, and the bad Ground will be turned on the Top; which is what I have known done at a great Expence, by Persons who have been at the Top of their Profession, and have thereby intirely ruin'd the Gardens.

Where there is a Necessity of bringing in any fresh Earth for the Borders, it will be proper to do it as soon as possible, and to mix this with the Surface-earth of the Borders, that it may be turned over two or three times, that the Parts may be well mixed and incorporated, before the Trees are planted; and if some very rotten Dung is added to this, it will greatly improve it. In choosing of the Earth which is to be brought into the Garden, there should be this Care; *viz.* that if the natural Soil of the Garden is light and dry, then the new Earth should be loamy and stiff: but where the natural Soil

is strong or loamy, then the new Earth should be light and sandy, which will loosen the Parts of the natural Soil, and greatly mend it.

There are some Persons who recommend the laying the whole Depth of the Borders with what they call Virgin-earth; that is, such as is taken from a Pasture where the Land has not been plowed. But if this is not brought into the Garden at least one Year before the Trees are planted, that by turning it over often it may be sweeten'd, it will not be so good as that which is taken from a Kitchen-garden, or an arable Field, where the Land is good, and has been well wrought; for by often turning and breaking of the Soil, it will be the better prepar'd to receive the Trees.

Others recommend the mixing a great Quantity of rotten Dung with the Earth of the Borders; but this is not so proper; for by making of the Ground too rich, it will only encourage the luxuriant Growth of the Trees: therefore it is always better to mend the Borders from time to time, as they may require, and not to add so much Dung in the first making them.

Another Care is required, in the making of the Borders on wet Ground; which is to contrive some cover'd Drains to convey off the Water in Winter; otherwise, by this being detain'd about the Roots of the Trees, it will greatly prejudice them; and in the building of the Walls round a Kitchen-garden, where the Ground is inclinable to be wet, there should be some Arches turn'd in the Foundations of those Walls which are in the lowest Part of the Garden, to let off the Wet.

The manner of preparing these Trees for Planting is the same as hath been directed for other Fruit-

trees; *viz.* To cut off all the small Fibres from the Roots, and to shorten some of the longest Roots, and cut off all the bruised ones, or such as shoot downright: this being done, you should plant them in the Places intended, at the before-mention'd Distance. The best time to plant these Trees (if upon a middling or dry Soil) is in *October*, leaving their Heads on till Spring; which should be fasten'd to the Walls or Stakes, to prevent the Wind from disturbing their Roots; and in the Beginning of *March* their Heads should be cut off, in the manner already directed for Peaches, and other Fruit-trees; observing also to lay some Mulch upon the Surface of the Ground about their Roots when they are planted; as hath been several times already directed for other Trees.

The first Summer after planting, the Branches should be trained to the Wall or Espalier (against which they are planted) in an horizontal Position, as they are produced, without shortening of them; and the *Michaelmas* following some of these Shoots should be shorten'd down to five or six Eyes, in order to obtain a sufficient Quantity of Branches, to furnish the lower Part of the Wall or Espalier. But when this is done, the Shoots ought not to be shorten'd, unless where there is a want of Branches to fill a Vacancy; therefore the less the Knife is used to these Trees, the better they will succeed: for whenever the Shoots are stopp'd, it occasions the Buds immediately below the Cut to send forth two or more Shoots, whereby there will be a Confusion of Branches; and rarely any Fruit is produced with this Management.

The Distance which the Branches of Pears should be train'd, must be proportion'd to the Size of their Fruit.

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Such Sorts whose Fruit are small, may be allow'd five or six Inches; but the larger Sorts must not be less than seven or eight Inches asunder. If this be duly observ'd, and the Branches carefully train'd horizontally as they are produc'd, there will be no Occasion for so much cutting as is commonly practis'd on these Trees; which, instead of checking their Growth, does, on the contrary, cause them to shoot the stronger.

It is very surprizing to read the tedious Methods which most of the Writers on Fruit-trees have directed for pruning of these Trees; for, by their prolix and perplexed Methods, one would imagine they had endeavour'd to render themselves as unintelligible as possible: and this, I am sure, may be affirm'd, That it is next to impossible for a Learner ever to arrive at any tolerable Skill in pruning, by the tedious and perplexed Directions which are publish'd by Monsieur *Quintiney*, and those who have copied from him; for as these have all set out wrong in the Beginning, by allowing their Trees less than half the Distance which they should be planted, so they have prescribed Rules to keep them within that Compass; which are the most absurd, and contrary to all Reason; therefore should not be practis'd by those Persons who are desirous of having plenty of Fruit.

I shall therefore only lay down a few necessary Directions for the pruning and managing of these Trees; which shall be done in as few Words as possible, that a Learner may the more easily understand it; and which (together with proper Observations) will be sufficient to instruct any Person in the right Management of them.

Pear-trees generally produce their Blossom-buds first at the Extremity

of the last Year's Shoots; so that if these are shortened, the Blossoms are cut off. But this is not all the Damage; for (as I before said) this occasions the Buds immediately below the Cut to put forth two or more Shoots, whereby the Number of Branches will be increased, and the Tree crouded too much with Wood: besides, those Buds, which by this Management produce Shoots, would have only produc'd Curfons and Spurs, upon which the Blossom-buds are produced, if the leading Branch had not been shorten'd; therefore these should never be stopp'd, unless to furnish Wood to fill a Vacancy.

It is not necessary to provide a new Supply of Wood in Pear-trees, as must be done for Peaches, Nectarines, &c. which only produce their Fruit upon young Wood; for Pears produce their Fruit upon Curfons or Spurs, which are emitted from Branches which are three or four Years old; which Curfons continue fruitful many Years: so that where these Trees have been skilfully managed, I have seen Branches which have been trained horizontally, upward of twenty Feet from the Trunk of the Tree, and have been fruitful their whole Length. And if we do but carefully observe the Branches of an healthful Standard-tree, which has been permitted to grow without pruning, we shall find many that are ten or twelve Years old, or more, which are very full of these Curfons; upon which a good Number of Fruit is annually produc'd.

During the Summer-season these Trees should be often look'd over, to train in the Shoots, as they are produc'd, regularly, to the Wall or Espalier, and to displace fore-right and luxuriant Branches as they shoot out; whereby the Fruit will be
equally

equally exposed to the Air and Sun, which will render them more beautiful, and better tasted, than when they are shaded by the Branches; and by thus managing the Trees in Summer, they will always appear beautiful; and in Winter they will want but little pruning.

Where Pear-trees are thus regularly train'd, without stopping of their Shoots, and have full room for their Branches to extend on each Side, there will never be any Occasion for disbarking of the Branches, or cutting off the Roots (as hath been directed by several Writers on Gardening); which Methods, however they may answer the Intention for the present, yet will certainly greatly injure the Trees; as must all violent Amputations, which should ever be avoided, as much as possible, on Fruit-trees; and this, I am sure, can never be wanted, where Trees have been rightly planted, and regularly trained, while young.

The Season for pruning of these Trees is any time after the Fruits are gathered, until the Beginning of *March*; but the sooner it is done, after the Fruit is gather'd, the better, for Reasons already given for pruning of Peach-trees; though indeed, the deferring of these until Spring, where there are large Quantities of Trees to prune, is not so injurious to them, as to some more tender Fruits: but if the Branches are regularly train'd in the Summer, and the luxuriant Shoots rubb'd off, there will be little left to do to them in Winter.

All the Sorts of Summer Pears will ripen very well, either on Standards, Dwarfs, or Espaliers; as will all the Autumn Pears, upon Dwarfs or Espaliers; but where a Person is very curious in his Fruit, I would al-

ways advise the planting them against Espaliers; in which Method they take up but little room in a Garden, and, if they are well manag'd, appear very beautiful; and the Fruit is larger and better-tasted than those produc'd on Dwarfs, as hath been already observ'd: but some of the Winter Pears must be planted against East, South-east, or South-west Walls; otherwise they will not ripen well in *England*, in bad Seasons.

But altho' this may be the Case with some of the late Winter Pears, in very bad Seasons; yet, in general, most Sorts of them will ripen extremely well in all warm Situations, when they are planted in Espalier; and the Fruit will be better flavour'd than that which grows against Walls, and will keep much longer good: for as the Heat against Walls which are exposed to the Sun, will be very great at some times, and at others there will be little Warmth; so all Fruits which grow near them, will be hasten'd unequally; and therefore is never so well-flavour'd as the same Sorts are which ripen well in the open Air: and all the Fruit which is ripen'd thus unequally, will decay much sooner than those which ripen gradually in the open Air; therefore those Winter Pears which grow in Espalier, may be kept six Weeks longer than those which grow against Walls; which is a very desirable thing. For to have plenty of these Fruit, at a Season when it is very rare to find any other Fruit to supply the Table but Apples, is what all Lovers of Fruit must be greatly pleas'd to enjoy: which is what may be effected, by planting many of the late Sorts in Espalier; where, although the Fruit will not be so well colour'd as those from the Walls, yet they will be found exceeding good. When the

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Besi du Chaumontelle came first to England, the Trees were planted in Espalier; and some of them not on a very good Soil, or in a warm Situation; and yet from these Trees I have eaten this Pear in great Perfection in April, and sometimes it has kept till May; whereas all those which have been since planted against Walls, ripen their Fruit by the Beginning of November, and are generally gone by the Middle of December; nor are these latter so well tasted as those of the Espaliers.

The *Virgouleuse* and *St. Germain*, as also the *Colmar*, are esteem'd the most difficult Sorts to ripen their Fruit: yet these I have eaten in great Perfection from Espaliers, and often from Standard-trees, where they grew upon a warm Soil; but the Fruit was much smaller on the Standard-trees, than those of the same Sorts which grew against Walls or Espaliers; but they were full as well-flavour'd. And some of these Sorts I have eaten good in April, which is two Months later than these Sorts usually keep. But yet I would not advise the planting of these late Pears in Standards, because they should hang very late on the Trees in the Autumn; at which Season, the Winds are generally very high, and these Standard-trees being much expos'd, the Fruit is often blown off the Trees before they are ripe; and those of them which may hang on the Trees, are frequently bruised by being forc'd against the Branches by the Winds, so that they seldom keep well. What I mention'd this for, is to prove, that these Pears will ripen very well without the Assistance of a Wall; so that if they are planted in Espaliers, where the Trees are kept low, the Fruit will not be so much expos'd to the strong Winds in the Autumn, as those on the Standards;

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therefore can be in no Danger of the Fruit coming to Perfection. And as the Trees in Espalier will be constantly pruned, and manag'd in the same manner as those against Walls, so the Fruit will be as large on those Trees: therefore where a Person has a warm Situation, and a kindly Soil, I would not advise the being at an Expence to build Walls on purpose for Pears, but to plant them against Espaliers; and where there is any one who is very curious in having plenty of these Fruit, and will be at some Expence to procure them, I should advise the having a sufficient Quantity of Reed Mats made, to fix up against the Back of the Espalier in the Spring, when the Trees are in Blossom; which will screen them from cold Winds, and preserve the tender Fruit until they are past Danger; when the Reeds may be taken down, and put under a Shed to preserve them from the Weather. And if the Autumn should prove bad, these Reeds may be fix'd up again, which will forward the ripening of the Fruit, and also prevent the Winds from blowing down, and bruising of it. These Reeds may be purchas'd for one Shilling per Yard, running Measure, at six Feet and an half high; and if they are carefully laid up, and kept from the Weather, these Reeds will last seven or eight Years; so that the Expence will not be very great: and when the Advantages which these are of to the Fruit are consider'd, I believe no Person will object to the Use of them.

But after the Fruit is set, and growing, there will be farther Care necessary in order to have the Fruit good; for it is not enough to have preserved a good Crop of Fruit on the Trees, and then to leave them intirely to Nature, during the Season

son of their Growth; but there will require some Skill and Attendance on the Trees, to help Nature, or supply the Deficiency of the Seasons: for beside the pruning and training the Trees, in the manner before directed, there will also be wanting some Management of their Roots, according to the Nature of the Soil, and the Difference of Seasons. In all strong Land, where the Ground is apt to bind very hard in dry Weather, the Surface of the Borders should be now-and-then forked over, to loosen the Earth; which will admit the Showers, and large Dews, to penetrate and moisten the Ground, and be of great Service to the Trees and Fruit, and also prevent the Growth of Weeds. And if the Soil is light and dry, and the Season should prove hot and dry, there should be large Hollows made round the Stems of the Trees, to hold Water; and into each of these there should be poured eight or nine Pots of Water; which should be repeated once a Week during the Months of *June* and *July*, if the Season should continue dry. There should also be some Mulch laid over the Surface of these Hollows, to prevent the Sun and Air from drying the Ground. Where this is practis'd, the Fruit will be kept constantly growing, and prove large and plump; whereas, if this is omitted, the Fruit will often be small, grow crooked, crack, and fall off from the Trees. For if the Fruit is once stinted in their Growth, and Rain should fall plentifully after, it will occasion a great Quantity of the Fruit to fall off the Trees; and those which remain to ripen, will not keep so long, as those which never receive any Check in their Growth; and it is from this Cause, that some Years the Fruit in general decays before

the usual time. For after it has been for some time stinted in its Growth, and then the Season proves favourable, whereby it receives a sudden Growth, it becomes so replete with Juice, as to distend the Vessels, whereby a Mortification often ensues: therefore it is always best to keep the Fruit constantly in a growing State, whereby it will acquire a proper Size, and be rendered better flavour'd.

There will also require some Dressing to the Ground near the Fruit-trees; but this should be laid on in Autumn, after the Trees are pruned. This Dressing should be different, according to the Nature of the Soil: if the Land is warm and dry, then the Dressing should be of very rotten Dung, mixed with Loam; and if this is mixed six or eight Months before it is laid upon the Borders, and three or four times turned over, it will be the better: as will also the Mixture, if it is made with Neats-dung, or Hog-dung; both which are colder than Horse-dung, so more proper for an hot Land. But in cold stiff Land, rotten Horse-dung, mixed with light sandy Earth, or Sea-coal Ashes, will be the most proper, as this will loosen the Ground, and add a Warmth to it.

These Dressings should be repeated every other Year, otherwise the Trees will not thrive so well, nor will the Fruit be so good. For, notwithstanding what many Persons have advanced to the contrary, yet Experience is against them; for the finest Fruit in *England*, both as to Size and Flavour, is produc'd on Land which is the most dunged and worked. Therefore I would advise the trenching of the Ground about the Fruit-trees very well every Winter; for I am sure they will find it answer their Expectations, who will practise

practise this Method. And where the Ground in the Quarters is well dressed and trenched, the Fruit-trees will partake of the Benefit; for as the Trees advance in their Growth, so their Roots are extended to a great Distance from their Stems; and it is chiefly from the distant Roots that the Trees are supplied with their Nourishment; therefore the dressing of the Borders only, will not be sufficient for Fruit-trees which are old.

In the gathering of the Pears, great Regard should be had to the Bud which is form'd at the Bottom of the Foot-stalk, for the next Year's Blossoms; which, by forcing off the Pear before it be mature, is, many times, spoil'd; for while the Fruit is growing, there is always a Bud form'd by the Side of the Footstalk, upon the same Spur, for the next Year's Fruit; so that when the Pears are ripe, if they are gently turn'd upward, the Footstalk will readily part from the Spur, without injuring the Bud.

The Season for gathering all Summer Pears is just as they ripen; for none of these will remain good above a Day or two after they are taken from the Tree: nor will many of the Autumn Pears keep good above ten Days, or a Fortnight, after they are gathered. But the Winter-fruits should hang as long upon the Trees as the Season will permit; for they must not receive the Frost, which will cause them to rot, and render their Juices flat, and ill-tasted: but if the Weather continues mild until the Middle of *October*, it will then be a good Season for gathering them in; which must always be done in dry Weather, and when the Trees are perfectly dry.

In the doing of this, you ought carefully to avoid bruising them; therefore you should have a broad

flat Basket to lay them in as they are gather'd; and when they are carried into the Store-room, they should be taken out singly, and each Sort laid up in a close Heap, on a dry Place, in order to sweat, where they may remain for ten Days, or a Fortnight; during which time the Windows should be open, to admit the Air, in order to carry off all the Moisture which is perspired from the Fruit: after this, the Pears should be taken singly, and wiped dry with a woollen Cloth, and then pack'd up in close Baskets; observing to put some sweet Wheat-straw in the Bottoms, and round the Sides of the Baskets, to prevent their bruising against the Baskets. And if some thick soft Paper is laid double or treble all round the Basket, between the Straw and the Pears, this will prevent the Pears from imbibing the musty Taste which is communicated to them by the Straw, when they are contiguous; which Taste often penetrates thro' the Skin so strongly, that when the Fruit is pared, the Taste will remain. You should also observe to put but one Sort of Fruit into a Basket, lest, by their different Fermentations, they should rot each other; but if you have enough of one Sort to fill a Basket which holds two or three Bushels, it will be still better. After you have fill'd the Baskets, you must cover them over with Wheat-straw very close; first laying a Covering of Paper two or three times double over the Fruit, and fasten them down; then place these Baskets in a close Room, where they may be kept dry, and from Frost; but the less Air is let into the Room, the better the Fruit will keep. It will be very necessary to fix a Label to each Basket, denoting the Sort of Fruit therein contain'd; which will save the Trouble of opening

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ing them, whenever you want to know the Sorts of Fruit: besides, they ought not to be open'd before their Season to be eaten; for the oftener they are open'd, and expos'd to the Air, the worse they will keep. I don't doubt but this will be objected to by many, who imagine Fruit can't be laid too thin; for which Reason, they make Shelves to dispose them singly upon, and are very fond of admitting fresh Air, whenever the Weather is mild, supposing it very necessary to preserve the Fruit: but the contrary of this is found true, by those Persons who have large Stocks of Fruit laid up in their Storehouses in *London*, which remain closely shut up for several Months, in the manner before related; and when these are open'd, the Fruit is always found plumper and sounder than any of those Fruits which were preserv'd singly upon Shelves, whose Skins are always shrivell'd and dry. For (as Mr. Boyle observes) the Air is the Cause of Putrefaction; and, in order to prove this, that honourable Person put Fruits of several Kinds into Glasses where the Air was exhausted, in which Places they remained sound for several Months; but, upon being expos'd to the Air, rotted in a very short time; which plainly shews the Absurdity of the common Method now used to preserve Fruit.



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QUAMOCLIT, Bind-weed.

The Characters are;
The Flower consists of one Leaf,

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shaped like a Funnel, and divided at the Top into several Segments: from the Flower-cup rises the Pointal, which afterward becomes a roundish Fruit, inclosing several oblong Seeds.

We have but one Species of this Plant in *England*; which is,

QUAMOCLIT *foliis tenuiter incis, & pennatis*. Tourn. Quamoclit with very fine-cut winged Leaves, commonly call'd, in *Barbados*, Sweet William.

This Plant is very common in *Jamaica*, *Barbados*, and the *Caribbee Islands*, where it climbs upon Bushes, Hedges, or whatever grows near it, and produces great Quantities of beautiful scarlet Flowers, almost of the Figure of a small Convolvulus-flower; but the Tube being much longer, and the Seeds being of a different Figure from those of the Convolvulus, Monsieur Tournefort hath separated it from that Genus. The Seeds of this Plant are generally brought into *England* every Spring, from the *West-Indies*: they should be sown on an Hot-bed in *March*; and when the Plants are come up, they must be planted each into a small Pot fill'd with light sandy Earth, and plunged into a fresh Hot-bed, to bring the Plants forward. As the Plants advance in Height, so they should be remov'd into larger Pots, and Sticks placed down by them, for them to climb upon. They must also be removed to a fresh Hot-bed, when the old one has lost its Heat; and when the Plants are too high to be contain'd under Frames, they should be remov'd into the Stove, where, if they plunged into a moderate Hot-bed of Tanners Bark, and not too much drawn, they will produce a great Quantity of beautiful scarlet Flowers, and ripen their Seeds very well; but if they are exposed to the open Air,

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Air, they seldom flower in this Country. This Plant continues but one Year, the Root perishing soon after the Seeds are ripe.

QUERCUS, The Oak-tree.

The Characters are ;

It hath Male Flowers (or Katkins), which consist of a great Number of small slender Threads: the Embryoes, which are produc'd at remote Distances from these, on the same Tree, do afterward become Acorns, which are produced in hard scaly Cups: to which may be added, The Leaves are sinuated.

The Species are ;

1. *QUERCUS latifolia*. Park. Theat. The common Oak.

2. *QUERCUS latifolia mas*, quæ brevi pediculo est. C. B. P. Oak with the Acorns on short Footstalks.

3. *QUERCUS latifolia, foliis ex albo eleganter variegatis*. The striped Oak.

4. *QUERCUS latifolia perpetuo vivens*. C. B. P. The broad-leav'd ever-green Oak.

5. *QUERCUS calyce echinato, glande majore*. C. B. P. Oak with large Acorns, having prickly Cups.

6. *QUERCUS humilis, gallis binis, ternis, aut pluribus simul junctis*. C. B. P. Dwarf Oak, vulgo.

7. *QUERCUS parva, sive Phagus Græcorum, & Esculus Plinii*. C. B. P. The Sweet Oak.

8. *QUERCUS calyce hispido, glande minore*. C. B. P. Oak with small Acorns, having a prickly Cup.

9. *QUERCUS Burgundiaca, calyce hispido*. C. B. P. The Burgundy Oak, whose Acorns have prickly Cups.

10. *QUERCUS pedem vix superans*. C. B. P. Dwarf Oak.

11. *QUERCUS foliis molli lanugine pubescentibus*. C. B. P. Oak with soft woolly Leaves.

12. *QUERCUS gallam exiguae nucis magnitudine ferens*. C. B. P. Oak

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which bears small Galls not larger than Nuts.

13. *QUERCUS foliis muricatis, non lanuginosis, galla superiori simili*. C. B. P. Oak with prickly Leaves, which are not woolly, bearing Galls like the former.

14. *QUERCUS foliis muricatis, minor*. C. B. P. Smaller Oak, with prickly Leaves.

15. *QUERCUS latifolia, magno fructu, calyce tuberculis obsito*. Tourn. Cor. Broad-leav'd Oak, with large Acorns, whose Cups are beset with Tubercles.

16. *QUERCUS Orientalis, glande cylindrisformi, longo pediculo insidente*. Tourn. Cor. Eastern Oak, with cylindrical Acorns growing on long Footstalks.

17. *QUERCUS Orientalis, castaneæ folio, glande recondita in cupula creffa & squamosa*. Tourn. Cor. Eastern Oak, with a Chestnut-leaf, whose Acorns are closely shut up in a thick scaly Cup.

18. *QUERCUS Orientalis angustifolia, glande minori, cupula crinita*. Tourn. Cor. Eastern Oak, with a narrow Leaf, and a smaller Acorn, whose Cup is hairy.

19. *QUERCUS Orientalis latifolia, glande maxima, cupula crinita*. Tourn. Cor. Eastern Oak, with a broad Leaf, and the largest Acorn, whose Cup is hairy.

20. *QUERCUS Orientalis latifolia, foliis ad costam pulchre incis, glande maxima, cupula crinita*. Tourn. Cor. Eastern broad-leav'd Oak, whose Leaves are finely cut to the Stalks, and a very large Acorn, whose Cup is hairy.

21. *QUERCUS Orientalis, folio subrotundo minori, glande magna striata*. Tourn. Cor. Eastern Oak, with a smaller roundish Leaf, and a large striated Acorn.

22. *QUERCUS Orientalis, folio subro-*

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subrotundo, leviter inciso, fructu minori cylindricoformi. Tourn. Cor. Eastern Oak, with a roundish Leaf, lightly cut in, and a smaller cylindrical Fruit.

23. *QUERCUS Virginiana, rubris venis muricata. Pluk. Phyt.* The Virginian scarlet Oak.

24. *QUERCUS castaneæ foliis, præcetera arbor Virginiana. Pluk. Phyt.* Virginian Oak, with Chestnut-leaves.

25. *QUERCUS alba Virginiana. Park. Theat.* The white or iron Oak of Virginia.

26. *QUERCUS Virginiana, salicis longiore folio, fructu minimo. Pluk. Amalth.* Virginian willow-leav'd Oak.

27. *QUERCUS pumilis, castaneæ folio, Virginienfis. Pluk. Almag.* The Chinquepin Oak.

28. *QUERCUS sempervirens, foliis oblongis non sinuatis. Banist.* Live Oak.

29. *QUERCUS (forte) Marilandica, folio trifido, ad sassafras accedente. Raii Hist.* The black Oak of Maryland.

30. *QUERCUS folio non serrato, in summitate triangulo. Catesb. Hist. Nat. Carolin.* The Water Oak.

31. *QUERCUS Caroliniensis, virentibus venis, muricata. Catesb. Hist. Nat. Carolin.* The white Oak of Carolina.

32. *QUERCUS humilior, salicis folio brevior. Catesb. Nist. Nat. Carolin.* Dwarf Highland Willow Oak.

33. *QUERCUS esculi divisura, foliis amplioribus aculeatis. Pluk. Phyt.* Red Oak of Maryland.

34. *QUERCUS Mariana, oleæ folio, glande parva compresso, ad apiculam eleganter radiato. Pluk. Mantif.* Swamp Spanish Oak.

35. *QUERCUS Mariano, muricatis castaneæ foliis subtus villosis. Pluk. Mant.* Champion - chestnut Oak of Maryland.

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The two first Sorts are common in England; but the Sort whose Acorns grow on short Footstalks, is less frequent than the other. I have seen several Trees of that Kind near *Dulwich* in *Surry*; but whether the Acorns of this Sort will produce Trees of the same Kind, I cannot determine. There are many large Trees of this Kind in *Sussex*, where the Timber of this Sort is esteem'd preferable to the first Sort; tho', as I have already mention'd, I do not know if it is specifically different from it, having had no Opportunity to raise any of these Trees from the Acorns. But the late Duke of *Richmond* had sowed a large Clump with these Acorns, a Year before his Death, at his Seat at *Goodwood* in *Sussex*; where his Grace had sowed Clumps of all the different Kinds of Oaks which he could procure, not only in *Europe*, but also from *America*, and the *Lewant*; but these Plants are at present too small to be distinguished by their Leaves, tho', in a few Years, it will not be difficult to determine whether the Acorns will always produce the same Kind as the Trees from whence they were taken. The Sort with strip'd Leaves was obtain'd by Accident; but may be propagated by budding or grafting it upon the common Oak. The Leaves of this are generally variegated with White in a most beautiful manner; and the Tree is esteem'd a great Curiosity, by such as delight in variegated Plants.

The fourth Kind deserves a Place in Wildernesses, amongst other Sorts of ever-green Trees, where it will make a beautiful Appearance; but the Timber is not near so good as that of the common Sort, and it is very rare in *England*.

The fifth Kind was originally brought into *England* from *Spain*; but

but is also found in *France* and *Italy*. This is hardy enough to endure the Cold of our Winters very well, and is preserv'd by such as are curious in collecting the several Kinds of Trees.

The eight Sorts which are next mention'd, are Natives of *Europe*; some of them grow in the Middle of *France*; others in *Spain*, *Portugal*, *Italy*, and *Germany*. The eleventh Sort grows plentifully about *Aubigny* in *France*, from whence his Grace the late Duke of *Richmond* brought many of the Acorns, which were sown at *Goodwood* in the Year 1749. These Sorts are full as hardy as the common Oak, so may be treated in the same manner.

The next eight Sorts were discover'd by Dr. *Tournefort* in the *Levant*, and have since been observ'd by some curious Travellers who have gone that Way, some of whom have brought their Acorns to *England*; but as these are subject to perish when they are kept long out of the Ground, there have not been more than three of these Sorts rais'd in *England*, so far as I can learn. The Plants of those Sorts which have been rais'd here, seem to be full as hardy as our common Oak; for I have expos'd them the first Year from Seed, to all the Inclemency of Weather, even in small Pots, which stood in the coldest Situation of the Garden; yet were not the least injured by the Frost.

The other Sorts are all of them Natives of the Northern Parts of *America*, where some of the Sorts grow to a very large Size; but the Timber of them is not valuable. Others of them are but small of Growth, seldom rising above twenty or thirty Feet high; and many of them naturally grow upon moist swampy Land, so that in *England*

they make but little Progress; therefore they are not worth the Trouble of cultivating, except one or two Plants of each Sort, for the sake of Variety. For whatever may have been asserted in relation to the Growth of these *American* Oaks, or of the Goodness of the Timber; yet I hope no Persons will be so weak as to cultivate these Trees, in Preference to the native Oak of this Country, which is more valuable than any other Sort yet known. But as the present Spirit of introducing all the Sorts of foreign Trees and Shrubs into *England*, prevails with most curious Persons, therefore I have mention'd most of the Sorts at present known, more to satisfy the Curiosity of a few, than for general Use.

All the Sorts of Oaks are propagated from Acorns, which should be sown as soon as possible after they are ripe; for if they are kept too long out of the Ground, they seldom grow.

The Manner of sowing these Acorns (if designed for a small Plantation, or to be removed) is, to prepare some Beds of fresh Earth, neither too strong and heavy, nor too light and dry; in these Beds you should place the Acorns in Rows one Foot asunder, and about two Inches Distance in the Rows, covering them about two Inches thick with the same fresh Earth; observing to leave none of them uncover'd, to entice the Vermin, which may, in a short time, destroy all the Seeds.

In the Spring, when the Plants begin to appear, you must carefully clear them from Weeds; and if the Season proves dry, you should refresh them now-and-then with a little Water, which will greatly promote their Growth. In these Beds the Plants should remain until the

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following Autumn (observing constantly to keep them clear from Weeds); at which time you should prepare a Spot of good fresh Earth (in Size proportionable to the Quantity of Plants), which should be well trench'd and levell'd: then, toward the Middle or Latter-end of *October*, you should carefully take up the Plants, so as not to injure their Roots, and plant them out in Rows three Feet asunder, and eighteen Inches Distance Plant from Plant; observing never to suffer the Plants to abide long out of the Ground, because their Roots would dry, and endanger the Growth of the Plants.

When they are planted, you should lay a little Mulch upon the Surface of the Ground, near their Roots, to prevent the Earth from drying too fast; and if the Season should prove very dry, you should give them a little Water, to settle the Earth to their Roots.

When the Plants have taken Root in this Nursery, they will require little more Care than to keep them clear from Weeds, and dig the Ground between the Rows every Spring; in doing of which, you should cut off such Roots as extend very far from the Trunk of the Trees, which will render them better for transplanting again: you should also prune off such Side-branches as extend themselves very far, and would retard the upright Shoots: but you should by no means cut off all the small lateral Branches, some of which are absolutely necessary to be left on, to detain the Sap for the Augmentation of the Trunk; for I have often observ'd, where Trees have been thus closely pruned, that their Heads have overgrown their Bodies, so that they have bent downward, and become crooked.

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When these Trees have remain'd in the Nursery three or four Years, they will then be large enough to transplant to the Places where they are to remain; for it is not proper to let them grow very large before they are planted out; because these are very hazardous Trees to remove when old, or after they have taken deep Root.

The Season for this Work is (as I said before) in the Autumn; at which time, if they are carefully taken up, there will be little Danger of their succeeding. When they are planted, the Surface of the Ground should be mulch'd about their Roots, to prevent its drying too fast: and if the Season is very dry, they should be water'd, to settle the Earth to their Roots, which may be repeated two or three times in very dry Weather: but you must carefully avoid giving them too much Water, which is very injurious to these Trees, when newly remov'd.

You should also stake them, to prevent their being shaken and disturbed by the Winds, which would retard their Rooting. In transplanting of these Trees, you should by no means cut their Heads, which is too much practis'd: all that should be done, must be only to cut off any bruised or ill-placed Branches, which should be taken off close to the Place where they are produc'd: but there can be no greater Injury done to these Trees, than to shorten their Shoots; for when the leading Bud (which is absolutely necessary to draw and attract the Nourishment) is taken off, the Branch often decays intirely, or at least down to the next vigorous Bud.

The Trees, thus rais'd and manag'd, will (if planted in a proper Soil) grow to a considerable Magnitude, and are very proper for a Wilderness

dernefs in large Gardens, or to plant in Clumps in Parks, &c. but if they are design'd for Timber, it is by much the better Method to fow the Acorns in the Places where they are to remain; in order to which, you should provide yourself in Autumn with a fufficient Quantity of Acorns, which should be always taken from ftrait, upright, vigorous-growing Trees; these should be gather'd from under the Trees as soon as may be, after they are fallen, and, if possible, in a dry Time, laying them thin in some open Room to dry; after which they may be put in dry Sand, and preserv'd in a dry Place until the Beginning of *November*, when you should prepare the Ground for planting them.

The Directions here given are solely for small Plantations in a Garden or Park, which are only design'd for Pleasure: but where these Trees are cultivated with a View to Profit, the Acorns should be sown where the Trees are design'd to grow; for those which are transplanted will never grow to the Size of those which stand where they are sown, nor will they last near so long sound. For in some Places, where these Trees have been transplanted with the greatest Care, and they have grown very fast for several Years after, yet they are now decaying, when those which remain in the Place where they came up from the Acorns, are still very thriving, and have not the least Sign of Decay. Therefore, whoever designs to cultivate these Trees for Timber, should never think of transplanting them, but fow the Acorns on the same Ground where they are to grow; for the Timber of all those Trees which are transplanted, is not near so valuable as that of the Trees from Acorns. I shall therefore add some plain Di-

rections for the sowing of Acorns, and managing of the young Trees, during their Minority, until they are out of Danger, and require no farther Care.

The first Thing to be done is, that of fencing the Ground very well, to keep out Cattle, Hares, and Rabbits; for if either of these can get into the Ground, they will soon destroy all the young Trees. Indeed they will in a few Years grow to be out of Danger from Hares and Rabbits; but it will be many Years before they will be past Injury from Cattle, if they are permitted to get into the Plantation; therefore durable Fences should be put round the Ground: if in the Beginning a Pale-fence is made about the Land, which may be close at the Bottom, and open above, and within the Pale a Quick-hedge planted; this will become a good Fence, by the time the Pale decays, against all Sorts of Cattle; and then the Trees will have got above the Reach of Hares and Rabbits, so that they cannot injure them; for the Bark of the Trees will be too hard for them to gnaw.

After the Ground is well fenced, it should be prepar'd, by plowing of it three or four times, and after each Plowing, harrow it well, to break the Clods, and cleanse the Ground from Couch, and the Roots of all bad Weeds. Indeed, if the Ground is Green-sward, it will be better to have one Crop of Beans, Peas, or Turneps, off the Ground, before the Acorns are sown, provided these Crops are well hoed to stir the Surface, and destroy the Weeds: for, if this is observ'd, the Crop will mend and improve the Land for sowing; but in this Case the Ground should be plow'd as soon as possible, when the Crop is taken off, to prepare it for the Acorns: which should

be sown as soon as may be after the Acorns are ripe: for although these may be preserv'd in Sand for some time, yet they will be apt to sprout; and, if so, the Shoots are in Danger of being broken and spoil'd: therefore I should advise the sowing early, which is certainly the best Method.

In making choice of the Acorns, all those should be preferr'd, which are taken from the largest and most thriving Trees: and those of Pollard-trees should always be rejected, tho' the latter are generally the most productive of Acorns; but those of the large Trees will commonly produce the strongest and most thriving Plants.

The Season for sowing of the Acorns being come, and the Ground having been plow'd, and levell'd smooth, the next Work is to sow the Acorns, which must be done by drawing of Drills across the Ground, at about four Feet asunder, and two Inches deep, into which the Acorns should be scatter'd, at two Inches Distance. These Drills may be drawn either with a Drill-plough, or by Hand with an Hoe; but the former is the most expeditious Method, therefore in large Plantations should be preferr'd: in the drawing of the Drills, if the Land has any Slope to one Side, these should be made the same Way as the Ground slopes, that there may be no Stoppage of the Wet by the Drills or Rows of Plants crossing the Hanging of the Land. This should be particularly observ'd in all wet Ground, or where the Wet is subject to lie in Winter. When the Acorns are sown, the Drills should be carefully fill'd in, so as to cover the Acorns securely; for if any of them are expos'd, they will entice the Birds and Mice; and if either of these once attack them, they will make great Havock with them.

The Reason of my directing the Drills to be made at this Distance, is for the more convenient stirring of the Ground between the Rows, to keep the young Plants clean from Weeds: for if this is not carefully done, it cannot be expected, that the young Plants should make much Progress; and yet this is generally neglected by many who pretend to be great Planters, who are often at a large Expence to plant, but seldom regard them after: so that the young Plants have the Difficulty to encounter the Weeds, which frequently are four or five times the Height of the Plants, and not only shade and draw them, but also exhaust all the Goodness of the Ground, and consequently starve the Plants. Therefore, whoever hope to have Success in their Plantations, should determine to be at the Expence of keeping them clean for eight or ten Years after sowing, by which time the Plants will have obtain'd Strength enough to keep down the Weeds: the neglecting of this has occasion'd so many young Plantations to miscarry, as are frequently to be met with in divers Parts of *England*.

About the End of *March*, or Beginning of *April*, the young Plants will appear above-ground; but, before this, if the Ground should produce many young Weeds, it will be good Husbandry to scuffle the Surface over with *Dutch* Hoes, in a dry time, either the Latter end of *March*, or the Beginning of *April*, to destroy the Weeds, whereby the Ground will be kept clean, until all the Plants are come up, so as to be plainly discern'd; by which time it may be proper to hoe the Ground over again; for by doing it early, while the Weeds are small, a Man will perform more of this Work in one Day than he can in three or four when

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when the Weeds are grown large : beside, there will be great Hazard of cutting off or injuring the young Plants, when they are hid by the Weeds ; and small Weeds, being cut, are soon dried up by the Sun ; but large Weeds often take fresh Root, and grow again, especially if Rain should fall soon after, and then the Weeds will grow the faster for being stirred ; therefore it is not only the best Method, but also the cheapest Husbandry, to begin cleaning early in the Spring, and to repeat it as often as the Weeds are produc'd.

The first Summer, while the Plants are young, it will be the best Way to perform these Hoeings by Hand ; but afterward it may be done with the Hoe-plough ; for as the Rows are four Feet asunder, there will be room enough for this Plough to work ; and this will stir and loosen the Ground, which will be of great Service to the Plants : but there will require a little Hand-labour where the Plough is us'd, in order to destroy the Weeds, which will come up in the Rows between the Plants ; for these will be out of the Reach of the Plough ; and if they are not destroyed, they will soon overgrow and bear down the young Plants.

After the Plants have grown two Years, it will be proper to draw out some of them, where they grow too close ; but, in the doing of this, great Care should be had not to injure the Roots of those left ; for as the Plants which are drawn out are only fit for Plantations design'd for Pleasure, so these should not be so much regarded in their being remov'd, as to sacrifice any of those which are design'd to remain. In the Thinning of these Plantations, the Plants may at the first time be left about one Foot asunder, which will give them room enough to grow

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two or three Years longer : by which time it may be easy to judge which are likely to make the best Trees. Therefore these may be then fix'd on, as Standards to remain : though it will be proper to have a greater Number at this time mark'd than can be permitted to grow, because some of them may not answer the Expectation : and as it will be improper to thin these Trees too much at one time, so the leaving double the Number intended at the second Thinning will not be amiss. Therefore, if they are then left at about four Feet Distance in the Rows, they will have room enough to grow three or four Years longer : by which time, if the Plants have made good Progress, their Roots will have spread over the Ground ; therefore it will be proper to take up every other Tree in the Rows. But by this I do not mean to be exact in the Removing, but to make choice of the best Plants to stand, whichever Rows they may be in, or if they should not be exactly at the Distance here assign'd : what is intended here, is, to lay down general Rules, which should be as nearly comply'd with as the Plants will permit : therefore every Person should be guided by the Growth of the Trees in the Performance of this Work.

When the Plants have been reduc'd to the Distance of about eight Feet, they will not require any more Thinning. But in two or three Years time, those which are not to remain will be fit to cut down, to make Stools for Underwood ; and those which are to remain, will have made such Progress as to become a Shelter to each other ; for this is what should be principally attended to whenever the Trees are thinn'd : therefore in all such Places as are much expos'd to the Wind, the Trees

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should be thinn'd with great Caution, and by slow Degrees: for if the Air is let too much at once into the Plantation, it will give a sudden Check to the Trees, and greatly retard their Growth; but in shelter'd Situations, there need not be so great Caution us'd as in those Places; as the Plants will not be in so much Danger of suffering by the Cold.

The Distance which I should choose to allow to those Trees which are design'd to remain for Timber, is, from twenty five to about thirty Feet, which will not be too near, where the Trees thrive well; in which Case their Heads will spread, so as to meet in about thirty or thirty-five Years: nor will this Distance be too great, so as to impede the upright Growth of the Trees. This Distance is intended, that the Trees should enjoy the whole Benefit of the Soil. Therefore, after one Crop of the Underwood, or, at the most, two Crops are cut, I would advise the stubbing up the Stools, that the Ground may be intirely clear, for the Advantage of the growing Timber, which is what should be principally regarded: but in general most People have more Regard for the immediate Profit of the Underwood than the future Good of the Timber; and frequently by so doing spoil both: for, if the Underwood is left after the Trees have spread so far as that their Heads meet, the Underwood will not be of much Worth; and yet, by their Stools being left, they will draw away a great Share of Nourishment from the Timber-trees, and retard them in their Progress.

The Soil in which the Oak makes the greatest Progress, is a deep rich Loam, in which the Trees grow to the largest Size; and the Timber of those Trees which grow upon this

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Land, is generally more pliable than that which grows on a shallow or drier Ground; but the Wood of the latter is much more compact and hard. Indeed there are few Soils in *England* in which the Oak will not grow, provided there is proper Care taken in their Cultivation; though this Tree will not thrive equally in all Soils: but yet it might be cultivated to a national Advantage upon many large Wastes in several Parts of *England*, as also to the great Profit of the Estates where these Tracts of Land now lie uncultivated, and produce nothing to the Owner. And should the present Temper of destroying the Timber of *England* continue in Practice some Years longer, in the same Degree which it has for some Years past, and as little Care taken to raise a Supply, this Country, which has been so long esteem'd for its Naval Strength, may be oblig'd to seek for Timber abroad, or be content with such a Naval Strength as the poor Remains of some frugal Estates may have left growing: for, as to the large Forests, from whence the Navy has been so long supplied, a few Years will put an End to the Timber there: and how can it be otherwise, when the Persons to whose Care these are committed, reap an Advantage from the Destruction of the Timber?

Before I quit this Subject, I must beg Leave to take notice of another great Evil, which is of so much Consequence to the Public, as to deserve their utmost Attention; which is that of cutting down the Oaks in the Spring of the Year, at the time when the Sap is flowing. This is done for the sake of the Bark, which will then easily peel off: and, for the sake of this, I think, there is a Law, whereby People are oblig'd to cut down their Timber at this Season.

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son. But by so doing the Timber is not half so durable as that which is fallen in the Winter: so that those Ships which have been built of this Spring-cut Timber, have decay'd more in seven or eight Years, than others, which were built with Timber cut in Winter, have done in twenty. And this our Neighbours the *French* have experienced; and therefore have wisely order'd, that the Bark should be taken off the Trees, standing, at the proper Time; but the Trees are left till the next, and sometimes until the second Winter, before they are cut down: and the Timber of these is found to be more durable, and better for Use, than that of any Trees which have not been peel'd. Therefore I wish we were wise enough to copy after them in those Things which are for public Good, rather than to imitate them in their Follies, which has been too much the Fashion of late Years.

QUICK: By the Word Quick are generally understood all live Hedges, of whatever Sort of Plants they are compos'd, to distinguish them from dead Hedges: but, in the most strict Sense of this Word, it is applied to the Hawthorn, or *Mespilus sylvestris*; under which Name the young Plants, or Sets, are commonly sold by the Nursery-Gardeners, who raise them for Sale: for a farther Account of planting these for Hedges, see *Hedges*; as also *Mespilus*, for the raising of the Plants.

QUICK-BEAM. *Vide Sorbus Sylvestris.*

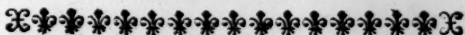
QUINCE-TREE. *Vide Cydonia.*

QUINCUNX ORDER is a Plantation of Trees, disposed originally in a Square, consisting of five Trees, one at each Corner, and a fifth in the Middle; which Disposition, repeated again and again,

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forms a regular Grove, Wood, or Wilderness; and when view'd by an Angle of the Square or Parallelogram, presents equal or parallel Alleys.

QUINQUEFOLIUM, Cinquefoil. *Vide Potentilla.*



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RADISH. *Vide Raphanus.*
RADISH (HORSE). *Vide Cochlearia.*

RAMPIONS. *Vide Campanula radice esculenta.*

RANDIA.

The Characters are;

It hath a Flower consisting of one Leaf, whose lower Part is tubulous; but the upper Part is expanded, and, for the most part divided into five Segments: the Flower is succeeded by an oval Fruit, having but one Cell, which is filled with flat cartilaginous Seeds, surrounded by a Pulp.

There is but one Species of this Plant at present known; *viz.*

RANDIA frutescens, spinis bijugis, foliis subrotundis, floribus albis. *Houft.* Shrubby Randia, with Spines growing two at a Joint, roundish Leaves, and white Flowers. This Plant is figured and described by Sir *Hans Sloane* in his History of *Jamaica*, under the Title of *Lycium forte, foliis subrotundis integris, spinis & foliis ex adverso sitis.* Vol. I. p. 40.

This Shrub grows plentifully about *La Vera Cruz*; from whence the Seeds were sent by the late Dr. *William Houftoun*, who gave this Name to it, in Honour to Mr. *Isaac Rand*, a curious Botanist.

This Shrub rises to the Height of ten or twelve Feet in the Country of its Growth, and divides into a great Number of Branches, which are al-

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ways produced by Pairs opposite ; as are also the Leaves and Spines. The Flowers are small, and of a white Colour, which are succeeded by hard oval-shaped Fruit, about the Size of a large *Spanish Nut*, which is full of flat Seeds, inclosed in a soft blackish Pulp.

It is propagated by Seeds, which should be sown early in the Spring, in Pots filled with fresh light Earth, and plung'd into an Hot-bed of Tanners Bark, observing to water the Earth frequently, to promote the Vegetation of the Seeds. When the Plants come up, they must have fresh Air admitted to them every Day, when the Weather is warm ; and they must be often refreshed with Water. In about a Month's time after the Plants come up, they will be fit to transplant ; when they should be carefully shaken out of the Pots, and each planted into a separate small Pot filled with fresh light Earth, and then plunged into the Hot-bed again ; where they must be screened from the Sun until they have taken new Root ; after which time they must have Air and Moisture in proportion to the Warmth of the Season. The Plants may remain in the Hot-bed till toward *Michaelmas*, when the Nights begin to be cold : at which time they should be removed into the Stove : and if they are plunged into the Bark bed, it will greatly forward their Growth ; tho' they will live in the dry Stove, if they are kept in a moderate Temperature of Heat, and are frequently watered. During the two first Seasons, while the Plants are young, it will be proper to keep them constantly in the Stove ; but then their Leaves must be washed, whenever they contract Filth ; which will bring them forward : but after the Plants have obtained Strength, they may

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be exposed every Summer to the open Air, provided they are placed in a warm Situation : but in Winter they must be constantly placed in a Stove, and kept in a moderate Warmth ; otherwise they will not live in this Country.

The Leaves of this Plant continue green throughout the Year, which renders the Plant valuable, because it makes an agreeable Variety in the Winter-season, when mixed with other tender Plants. Sir *Hans Sloane* found this Plant in the Island of *Barbados*.

RANUNCULUS, Crowfoot.

The Characters are ;

The Flower consists of several Leaves, which are placed in a circular Order, and expand in form of a Rose ; having, for the most part, a many-leav'd Empalement or Flower-cup : out of the Middle of the Flower rises the Pointal, which afterward becomes a Fruit, either round, cylindrical, or spiked ; to the Axis of which, as a Placenta, adhere many Seeds, for the most part naked.

The Species are ;

1. *RANUNCULUS hortenſis erectus, flore pleno. C. B. P.* Common yellow Crowfoot, with a double Flower.

2. *RANUNCULUS repens, flore pleno. J. B.* Common creeping Crowfoot, with a double Flower.

3. *RANUNCULUS montanus, aconiti folio, albu, flore minore. C. B. P.* Mountain Crowfoot, with a white Flower.

4. *RANUNCULUS folio aconiti, flore albo multiplici. C. B. P.* Crowfoot with a Monk's-hood-leaf, and a double white Flower ; commonly called the Fair Maid of France.

5. *RANUNCULUS bulbosus, flore pleno. C. B. P.* Common bulbous-rooted Crowfoot, with a double Flower.

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6. *RANUNCULUS Constantinopolitanus, flore sanguineo pleno. J. B.* Common Ranunculus, with a double bloody Flower.

7. *RANUNCULUS asphodeli radice, prolifer miniatus. C. B. P.* Ranunculus, with an Asphodel-root, and childing carmine Flowers; commonly called Turk's Turban.

8. *RANUNCULUS Asiaticus polycellus, sive grumosa radice, secundus. J. B.* Asiatic Ranunculus, with many Heads, and a grumose Root; commonly called *Sphaericus*.

9. *RANUNCULUS asphodeli radice, flore sanguineo maximo. H. R. Par.* Asphodel-rooted Ranunculus, with a very large red Flower; commonly called the Monster.

10. *RANUNCULUS asphodeli radice, flore subphœniceo rubente. C. B. P.* Asphodel-rooted Ranunculus, with purplish-red Flowers; commonly called *Marvelia*.

11. *RANUNCULUS asphodeli radice, flore luteo variegato. H. R. Par.* Asphodel-rooted Ranunculus, with a yellow variegated Flower.

12. *RANUNCULUS Alepus, grumosa radice, flore lineis rubris & luteis striato. H. R. Par.* Grumose-rooted Crowfoot, with a Flower striped with red and yellow Lines; commonly called Ranunculus of *Aleppo*.

13. *RANUNCULUS asphodeli radice, flore flavo venis rubris distincto; Bosvel dictus. H. R. Par.* Crowfoot with an Asphodel-root, and yellow Flower with red Veins; commonly called *Bosvel*.

14. *RANUNCULUS Alepus, grumosa radice, flore miniato, per oras luteo. H. R. Par.* *Aleppo* Crowfoot, with a grumose Root, and a carmine Flower, bordered with yellow.

15. *RANUNCULUS flore pleno flavescente, & rubris lineis elegantissime variegato. H. R. Par.* Crowfoot with a double yellow Flower, curi-

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ously striped with red Lines; commonly called *Aurora*.

16. *RANUNCULUS asphodeli radice, flore pleno albo parvo, rubris striis distincto. H. R. Monsp.* Crowfoot with an Asphodel-root, and a small double white Flower striped with Red.

17. *RANUNCULUS asphodeli radice, flore pleno magno lacteo, superius litoris rubris eleganter picto. Boerb. Ind.* Crowfoot with an Asphodel-root, and a large double white Flower, mark'd above with red Spots; commonly called the Seraphic.

18. *RANUNCULUS montanus, folio gramineo. C. B. P.* Grass-leav'd Mountain Crowfoot.

19. *RANUNCULUS montanus, folio plantaginis. C. B. P.* Mountain Crowfoot, with a Plantain-leaf.

20. *RANUNCULUS lanuginosus angustifolius, grumosa radice, major. C. B. P.* Larger grumose-rooted Crowfoot, with narrow downy Leaves.

There are a great Number of Species of this Genus, which grow in *England*; some in Meadows, where they over-run the whole Ground, and are the most troublesome Weeds to Pastures; for as some of them are very acrid Plants, the Cattle never eat them; for they would blister their Tongues and Throats: therefore when these Pastures are grazed, the Crowfoot is left in Patches all over the Fields untouched. There are other Species of this Genus, which spread over the Surface of Standing-waters, and flower early in the Spring; and some grow in shady Woods: but as these are never cultivated in Gardens, I thought it needless to enumerate the several Species here.

The first and second Sorts here mentioned are Varieties of two of the wild Kinds: but as these produce
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very double Flowers, they are planted in the Borders of the Flower-garden, where they make a very pretty Variety, and continue long in Flower: the first Sort produces upright Stalks, which grow about a Foot high; but the second is a creeping Plant, with reclined Stalks: the latter propagates itself very fast by the trailing Shoots, which put out Roots at every Joint, as they lie upon the Ground. These have both yellow Flowers.

The fifth Sort is also a Variety of the common bulbous-rooted Crowfoot, which is common in the Pastures in most Parts of *England*: this produces upright Stalks, which grow eight or ten Inches high; the Flowers are but small, of a pale-yellow Colour, and very double: these often produce small Flowers coming out of the Middle of another, so as to have sometimes three Flowers growing above each other, and coming out of the Centre; and is for that by some called the Childing Crowfoot.

The third and fourth Sorts are Natives of the *Alps*: the third produces small white single Flowers in *April*, growing in large Bunches: but this is only preserved in some curious Botanic Gardens, for the sake of Variety; the fourth being much more esteemed on the account of its very double Flowers, which are of a snow-white Colour, and are produced also in Clusters. These Plants delight in Shade; and will thrive much better when they are planted in a loamy Soil, than on a light warm Ground; nor should their Roots be too often transplanted: if they are taken up every third Year, and their Roots parted, and planted again immediately, it will be as often as they will require: the best time for doing this is in Autumn, about

the Beginning of *October*, that they may get Root again before the Frost comes on; and the Roots should not be divided too small, especially if they are designed to flower strong the succeeding Spring. If these Roots are planted in a Border which is exposed to the East, so as they may have only the morning Sun, they will thrive much better than in a warmer Exposure; nor should the Border be much dunged, for they seldom thrive well in a rich Soil; therefore in the warm rich Grounds near *London* it is very rarely found to thrive: but in some neglected Country Gardens it grows luxuriantly, and produces much stronger, and a greater Number of Flowers, than in the Gardens near *London*, where they are cultivated with great Care: this Plant is very ornamental to the Flower-garden, during the Continuance of the Flowers, which is in *May*.

The eighteenth, nineteenth, and twentieth Sorts are also preserved in the Gardens of curious Persons, for the sake of Variety. The eighteenth Sort hath long narrow Leaves, which resemble those of some Sort of Grass; the Flowers are single, and of a yellow Colour, much like those of the common Crowfoot, or Butterflower, which grows in Pasture-grounds: this is a Native of the *Alps*; so is a very hardy Plant; and if the Roots are treated in the same way, as before directed, and planted to an East Aspect, they will thrive very well.

The nineteenth Sort hath broad Leaves, like those of Plantain; the Stalks grow about a Foot high, having several pretty large single white Flowers on their Tops, growing in Bunches: these appear in the Beginning of *April*, at which time they make a pretty Variety in the Borders of the Flower-garden: this is also a Native

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Native of the *Alps*, and must be treated the same way as the former.

The twentieth Sort is supposed to be a Native of *Austria* and *Hungary*; but this is also a very hardy Plant: the Roots of this Sort are very like those of the Garden *Ranunculus*; but are very small: the Leaves are also like those of some of the Garden-kinds; but are pretty woolly: the Flowers are single, and of a pale-yellow Colour, like some of the Field-crowfoots; therefore it is seldom preserved in the Flower-garden: but those who are curious in the Study of Plants, preserve it for the sake of Variety. The Roots of this Kind should be planted in a lighter Soil than either of the former; and if they are more exposed to the Sun, they will thrive the better: but these should not be taken out of the Ground oftener than every other Year: and if they are taken up soon after their Leaves decay, the Roots may be kept out of the Ground till the Beginning of *October*, and may be treated in the same manner as the Garden *Ranunculus*.

I have been informed, that in some Gardens in *France* there are Plants of these three Sorts, with very double Flowers; but I have never yet seen either of them; so would not enumerate them here: tho', if they can be obtained, they will be worthy of our Care, as they must be very ornamental Plants, especially the nineteenth Sort with double Flowers; for that with the single Flowers is no despicable Plant in the most curious Garden of Flowers, as it comes early in the Spring: and the Leaves of the Plant, having a fine glossy green Colour, set off the snowy white Flowers to great Advantage.

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The other Sorts were originally brought from *Turky*, and were formerly in great Esteem in *England*; but of late Years there have been introduced many other beautiful Flowers of a different Kind, from *Persia*; among which are many with semi-double Flowers, which produce Seeds; from which there are such prodigious Varieties of new Flowers annually obtained, which are so large, and of such Variety of beautiful Colours, as to exceed all other Flowers of that Season, and even vie with the most beautiful Carnations: these are, many of them, finely scented; and the Roots, when strong, generally produce twenty or thirty Flowers upon each; which, succeeding each other, continue in Beauty a full Month or longer, according to the Heat of the Season, or the Care taken to defend them from the Injuries of the Weather: all which excellent Qualities have rendered them so valuable, that the old Sorts here named are almost disregarded, except in some old Gardens: but however, as they are still preserv'd by some Persons, I shall briefly set down their Management, before I proceed to that of the new Kinds, which must be treated in a different manner from these.

All these very double Flowers never produce Seeds; so that they are only multiplied by Off-sets from their Roots, which they generally produce in great Plenty, if planted in a good Soil, and duly attended in Winter. The Season for planting their Roots is any time in *October*; for if they are planted sooner, they are apt to come up in a short time, and grow pretty rank before Winter, whereby they will be in greater Danger of suffering by Frost; and if they are planted much later, they will be in
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Danger of perishing under-ground ; so that you should not keep them out of the Ground any longer than the Beginning or Middle of *October*.

As these Sorts are pretty hardy, so they are generally planted in the common Borders of the Flower-garden, where, if they are properly intermixed with other Flowers of the same Growth, they will make a pretty Variety : indeed, some Years ago, before we had any of the more valuable Kinds in *England*, these were nursed up with great Care : but since the others have been introduced, and of late Years so much improved, by sowing their Seeds, whereby new Flowers have been continually obtained, the old Sorts have been almost rejected ; so that they are rarely to be found in the Gardens of Florists : however, some of them may be allow'd to have room in the common Borders of the Pleasure-garden, as they are seldom injured by the Frost ; whereas the *Persian* Kinds are more tender ; so must be planted in Beds, that they may be covered in Winter.

The Beds in which the *Persian* *Ranunculus* Roots are planted, should be made with fresh light sandy Earth, at least three Feet deep : the best Soil for them may be compos'd in this manner ; *viz.* Take a Quantity of fresh Earth from a rich upland Pasture, about six Inches deep, together with the Green-sward : this should be laid in an Heap to rot for twelve Months before it is mixed, observing to turn it over very often, to sweeten it, and break the Clods : to this you should add a fourth Part of very rotten Neats-dung, and a proportionable Quantity of Sea or Drift-sand, according as the Earth is lighter or stiffer : if it be light, and inclining to a Sand, there should be no Sand added ; but if it be an hazel

Loam, one Load of Sand will be sufficient for eight Loads of Earth : but if the Earth is strong and heavy, the Sand should be added in a greater Proportion : this should be mixed six or eight Months before it is used ; and you should often turn it over, in order to unite their Parts well together, before it is put into the Beds.

The Depth which this should be laid in the Beds, must be about three Feet : this should be below the Surface, in proportion to the Driness or Moisture of the Place where they are situated ; which in dry Ground should be two Feet eight Inches below the Surface, and the Beds rais'd four Inches above ; but in a moist Place they should be two Feet four Inches below, and eight above the Ground ; and in this Case, it will be very proper to lay some Rubbish and Stones in the Bottom of each Bed, to drain off the Moisture ; and if, upon this, at the Bottom of the Beds, some very rotten Neats-dung is laid two or three Inches thick, the Roots will reach this in the Spring, and the Flowers will be the fairer. This Earth I would by no means advise to be screen'd very fine ; only, in turning it over each time, you should be careful to break the Clods, and throw out all Stones, which will be sufficient ; for if it is made very fine, when the great Rains in Winter come on, it will cause the Earth to bind into one solid Lump, whereby the Moisture will be detain'd, and the Roots, not being able to extend their tender Fibres, will rot. Of this I have many Examples, but one particularly to my Cost : When I had procur'd a fine Parcel of these Roots from Abroad, and being desirous of having them thrive very well, I took great Pains to screen the Earth of my Beds very fine, which I laid above two Feet deep, and planted a
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good Part of my Roots therein ; but the Season advancing, and having a great deal of other Business upon my Hands, I did not screen the Earth of all my Beds, but planted some of them without doing any thing more than raking them ; and the Success was, that the Roots, in those Beds which were screen'd, did, great Part of them, intirely rot ; and the remaining Part were so weak, as not to produce any good Flowers : whereas those which were planted in the Beds which were not screen'd, did thrive and flower very well, and scarce any of the Roots fail'd, tho' the Earth of all the Beds was the same, and were in the same Situation, both with regard to Wind and Sun ; so that the Damage which those Roots sustain'd, was owing intirely to the Fineness of the Earth ; and this I have several times since observ'd in other Gardens.

I am aware, that this Depth of three Feet, which I have here directed to make the Beds for these Flowers, will be objected to by many Persons, on account of the Expence and Trouble of preparing them ; as also supposing it unnecessary to make the Beds so deep, for Flowers whose Roots are small ; but if they will give themselves the Trouble of making the Experiment, by preparing one Bed in this manner, and another in the common Way, and plant them both with the same Flowers, they will soon be convinced of their Error, by the Success of the Flowers. For in the Beds which have been prepared of this Depth, I have seen one Root produce upward of fifty Flowers, each of which grew near a Foot high, and were extremely large and fair ; whereas, in the common Method of Culture, they are thought to do very well, when they produce eight or ten Flowers on each Root,

and those grow six Inches high : but if a Person will trace the Length of the small Fibres of these Roots, he will find them to extend three or four Feet downward. And as it is by these distant Fibres that the Nourishment is taken in, for the Increase and Strength of the Flowers ; so, if these meet with a poor barren Soil below, they shrink, and the Flowers are starved for want of proper Nourishment in the Spring, when it is most required.

The Beds, being thus prepar'd, should lie a Fortnight to settle, before the Roots are planted, that the Earth may not settle unequally, after they are planted ; which would prejudice the Roots, by having hollow Places in some Parts of the Bed, to which the Water would run, and lodge, and so rot the Roots in such Places. Then having level'd the Earth, laying the Surface a little rounding, you should mark out the Rows by a Line, at about six Inches Distance each Way, so that the Roots may be planted every Way in strait Lines ; then you should open the Earth with your Fingers, at each Cross, where the Roots are to be planted, about two Inches deep ; placing the Roots exactly in the Middle, with their Crowns upright ; then with the Head of a Rake you should draw the Earth upon the Surface of the Bed level, whereby the Top of the Roots will be about an Inch cover'd with Earth, which will be sufficient at first. This Work should be done in dry Weather, because the Earth will then work better than if it were wet ; but the sooner after Planting there happens to be Rain, the better it will be for the Roots ; for if it should prove dry Weather long after, and the Earth of the Beds be very dry, the Roots will be subject to mould and decay ; there-

therefore in such a Case it will be proper to give a little Water to the Beds, if there should no Rain happen in a Fortnight's time, which is very rare at that Season of the Year; so that they will seldom be in Danger of suffering that way.

When the Roots are thus planted, there will no more be required until toward the End of *November*; by which time they will begin to heave the Ground, and their Buds appear; when you should lay a little of the same fresh Earth, of which the Beds were compos'd, about half an Inch thick all over the Beds, which will greatly defend the Crown of the Root from Frost: and when you perceive the Leaves to break thro' this second Covering, if it should prove very hard Frost, it will be very proper to arch the Beds over with Hoops, and cover them with Mats, especially in the Spring, when the Flower-buds will begin to appear; for if they are expos'd to too much Frost, or blighting Winds, at that Season, their Flowers seldom open fairly, and many times their Roots are destroy'd: but this happens more frequently to the *Persian* Kinds, which are tenderer, than to those Sorts which are pretty hardy; for which Reason they are commonly planted in open Borders, intermix'd with other Flowers, as is before-mention'd; though in very hard Winters these are apt to suffer, where the Frost is not guarded against.

In the Beginning of *March* the Flower-stems will begin to rise; at which time you should carefully clear the Beds from Weeds, and stir the Earth with your Fingers between the Roots, being very careful not to injure them; this will not only make the Beds appear handsome, but also greatly strengthen their Flowers. When the Flowers

are past, and the Leaves are wither'd, you should take up the Roots, and carefully clear them from the Earth; then spread them upon a Mat to dry, in a shady Place; after which they may be put up in Bags or Boxes, in a dry Room, until the *October* following, which is the Season for planting them again.

The *Persian* Sorts are not only propagated by Off-sets from the old Roots, as the former, but are also multiplied by Seeds, which the femi-double Kinds produce in Plenty; therefore whoever is desirous to have these in Perfection, should annually sow their Seeds, from which new Varieties will be every Year produc'd; but in order hereto, you should be careful in saving your Seed, or in procuring it from such Persons as understand how to save it; that is, who will be careful not to leave any Flowers for Seeds, but such as have five or six Rows of Petals at least, and are well colour'd; for since these Flowers increase plentifully, it is not worth the Trouble to sow any indifferent Seeds; because there can be but little Hopes of obtaining any good Flowers from such Seeds,

Being prepar'd with Seeds, about the Middle of *August*, which is the proper Season for sowing of them, you should get some large Pots, flat Seed-pans, or Boxes (of either as many as you have Seeds to sow). These should be fill'd with light rich Earth, levelling the Surface very even; then sow the Seeds thereon pretty thick, and cover it about a Quarter of an Inch thick with the same light Earth; after which, you should remove these Pots into a shady Situation, where they may have the morning Sun until Ten of the Clock; and if the Season should prove dry, you must often refresh them with Water; being very care-
ful

ful in doing of this, so as not to wash the Seeds out of the Ground. In this Situation the Pots should remain until the Beginning of *October*, by which time the Plants will begin to come up (though sometimes the Seeds will remain in the Earth until *November*, before the Plants appear); but then you should remove the Pots into a more open Exposure, where they may have full Sun; which, at that time, is necessary to exhale the Moisture of the Earth; but toward the Middle of *November*, when you are apprehensive of Frost, the Pots should be remov'd under a common Hot-bed-frame; where they may be cover'd with the Glasses in the Night-time, and in bad Weather; but in the Day, when the Weather is mild, they should be intirely open'd, otherwise the Plants will draw up too weak. The only Danger they are in, is from violent Rains and Frosts; the first often rotting the tender Plants, and the Frost will often turn them out of the Ground; therefore they should be carefully guarded against both these.

In the Spring, as the Season grows warm, these Pots should be expos'd to the open Air; placing them at first near the Shelter of an Hedge, to protect them from the cold Winds; but toward the Latter-end of *March*, or the Beginning of *April*, they should be remov'd again into a more shady Situation, according to the Warmth of the Season; and if it should prove dry, they must be refresh'd with Water; but you should be careful not to give it to them in great Quantities, which is very apt to rot these tender Roots; and in the Middle or Latter-end of *April*, they should be plac'd where they may have only the morning Sun; in which Place they may remain till their Leaves decay; when they may

be taken out of the Earth, and the Roots dry'd in a shady Place; after which they may be put in Bags, and preserv'd in a dry Place until the *October* following; when they must be planted in the manner before directed for the old Roots.

The Spring following, these Roots will flower; at which time you should carefully mark such of them as are worthy to be preserv'd; and the single or bad-colour'd Flowers may be pull'd up, and thrown away, which is the surest Method of removing them from the good Sorts; for if they are permitted to remain together until their Leaves decay, there may be some Off-sets of the bad Sorts mix'd with the good Flowers. You should not suffer those Flowers, which you intend to blow fine the succeeding Year, to bear Seeds, but cut off the Flowers when they begin to decay; for those Roots which have produc'd Seeds, seldom flower well afterwards; nor will the principal old Root, which has flower'd strong, ever blow so fair as will the Off-sets; which is what should be principally observ'd, when a Person purchases any of these Roots; and a great Part of the Complaints made by those who have bought these Roots at a dear Rate, is principally owing to this. For the Persons who sell them, being appris'd of this Matter, generally part with their old Roots to their Purchasers, and reserve the Off-sets for their own Use; which old Roots will often so much degenerate from what they were the preceding Year, as to cause a Suspicion, whether the Persons they were purchas'd from had not changed the Roots; and this Degeneracy always attends these Flowers, after having flower'd extremely large and fair, or that they have been permitted to seed: so that it is absolutely

lutely necessary to sow Seeds every Year, in order to preserve a Succession of good Flowers.

The Manner of preparing the Beds, and the Distance and Method of planting the Roots, having been already directed, I shall not repeat it here; but will only observe, that these Flowers, being tender, must be protected from hard Frosts, and cutting sharp Winds, especially after *Christmas*, when their Flower-buds are forming; for if they are neglected at that Season, their Flowers will rarely prove fair; nor should you suffer them to receive too much Wet in Winter or Spring, which is equally as injurious to them as Frost. In planting of these Roots you should observe to place the femidouble Kinds, from which you intend to save Seeds, in separate Beds by themselves, and not intermix them with the double Flowers, because they will require to be treated in a different manner; for when the Flowers of the femidouble Kinds begin to fade, you should carefully guard them from Wet; for if they are permitted to receive hard Rains, or are watered at that Season, the Seeds rarely come to Maturity; or are so weak, that scarce one in fifty of them will grow.

When the Seed begins to ripen (which may be easily known, by separating from the Axis, and falling), you should look it over every Day, gathering it as it ripens; for there will be a considerable Distance in the Seeds of the same Bed coming to Maturity, at least a Fortnight, and sometimes three Weeks, or a Month. When you gather the Seed, it should not be expos'd to the Sun, but spread to dry in a shady Place; after which, you must put it up where the Vermin cannot come to it, until the time offowing it.

By this Method of sowing Seeds every Year, you will not only increase your Stock of Roots, but also raise new Varieties, which may be greatly mended by changing the Seeds into fresh Ground; for if a Person continually sows his Seed in the same Garden many Years, they will not produce near so fine Flowers, as if he procur'd his Seeds at some Distance; which is also the Case with most other Plants.

It will also be necessary to take away all the Earth out of the Beds in which the Roots were blown the preceding Year, and put in new, if you intend to plant *Ranunculus*'s there again; otherwise they will not thrive near so well, notwithstanding you may add some new Compost to the Beds: and this is what all curious Florists continually observe.

RAPA, Turnep.

The Characters are;

The Flower consists of four Leaves, which are placed in form of a Cross: out of the Flower-cup rises the Pointal, which afterward turns to a Pod, divided into two Cells by an intermediate Partition, to which the Valves adhere on both Sides, and are full of roundish Seeds: to these Marks must be added, A carneous and tuberosse Root.

The Species are;

1. RAPA *sativa rotunda, radice candida.* C. B. P. Round Garden-turnep, with a white Root.

2. RAPA *sativa rotunda, radice supra terram viridi.* Boerb. Ind. Round Garden-turnep, whose Root is green above ground.

3. RAPA *sativa rotunda, radice punicea.* C. B. P. Round Garden-turnep, with a purple Root.

4. RAPA *sativa rotunda, radice obsoleta nigricante.* C. B. P. Round Garden-turnep, with a rusty-black Root.

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5. *RAPA sativa rotunda, radice foris & intus flavescente.* C. B. P. Round Garden-turnep, with a yellow Root both within and without.

6. *RAPA radice oblonga, seu femina.* C. B. P. Oblong, or female Turnep.

There are some other Varieties of this Plant, which differ in the Shape or Colour of their Roots; but as they are only feminal Variations, it would be needless to enumerate them in this Place, since it is the first and third Sorts here mention'd, which are chiefly cultivated for the Table in *England*. The yellow Sort, and that with long Roots, were formerly more cultivated than at present; for it is now very rare to see either of these brought to the Markets, though some Years since they were sold in as great Plenty as the common round Sort.

Turneps delight in a light sandy Soil, which must not be rich; for in a rich Soil they grow rank, and are sticky; but if it be moist, they will thrive the better, especially in a fresh Land, where they are always sweeter than upon an old worn-out, or a rich Soil.

The common Season for sowing of Turneps is any time from the Beginning of *June* to the Middle of *August*, or a little later; tho' it is not adviseable to sow them much after, because, if the Autumn should not prove very mild, they will not have time to apple before Winter. But, notwithstanding this is the general Season in which the greatest Part of Turneps are sown in the Country, yet about *London* they are sown successively from *March* to *August*, by those who propagate them to supply the Markets with their Roots; but there is a great Hazard of losing those which are sown early in the Year, if the Season should prove dry,

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by the Fly, which will devour whole Fields of this Plant while young; so that where a small Quantity for the Supply of a Family is wanted, it will be absolutely necessary to water them in dry Weather: and where a Person sows those Seeds in *April* and *May*, it should always be upon a moist Soil, otherwise they seldom come to good, the Heat of the Weather at that Season being too great for them upon a dry Soil: but those which are sown toward the Middle or Latter-end of *June*, commonly receive some refreshing Showers to bring them forward; without which, it is very common to have them all destroy'd.

These Seeds should always be sown upon an open Spot of Ground; for if they are near Hedges, Walls, Buildings, or Trees, they will draw up, and be very long-topp'd; but their Roots will not grow to any Size.

They are sown in great Plenty in the Fields near *London*; not only for the Use of the Kitchen, but for Food for Cattle in Winter, when other Food fails; and this Way is become a great Improvement to barren sandy Lands, particularly in *Norfolk*, where, by the Culture of Turneps, many Persons have doubled the yearly Value of their Ground.

The Land upon which this Seed is sown, should be plow'd in *April*, twy-fallow'd in *May*, and made very fine; then the Seed should be sown pretty thin (for it being small, a little will sow a large Piece of Ground: two Pounds of this Seed is sufficient for an Acre of Land; but one Pound is the common Allowance). The Seed must be harrow'd in, and the Ground roll'd with a wooden Roll, to break the Clods, and make the Surface even. In a Week or ten Days after sowing, the Plants will

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will come up ; at which time, if the Season should prove dry, they will be in great Danger of being destroyed by the Fly ; but if it so happen, the Ground must be sown again ; for the Seed being cheap, the chief Expence is the Labour.

When the Plants have got four or five Leaves, they should be hoed to destroy the Weeds, and to cut up the Plants where they are too thick ; leaving the remaining ones about six or eight Inches asunder each Way, which will be room enough for the Plants to stand for the first Hoeing : but in the second Hoeing, which must be perform'd about three Weeks or a Month after the first, they should be cut up, so as that the remaining Plants may stand fourteen or sixteen Inches Distance, or more, especially if they are design'd for feeding of Cattle ; for where the Plants are allow'd a good Distance, the Roots will be proportionably large ; so that what is lost in Number, will be over-gain'd by their Bulk ; which is what I have often observ'd. But in such Places where they are sown for the Use of the Kitchen, they need not be left at a greater Distance than ten Inches, or a Foot ; because large Roots are not so generally esteem'd for the Table.

It is not many Years since the Practice of sowing Turneps, for feeding of Cattle, has been of general Use : how it happen'd that this Improvement should have been so long neglected in every Part of *Europe*, is not easy to determine ; since it is very plain, that this Piece of Husbandry was known to the Antients. For *Columella*, in treating of the several Kinds of Vegetables which are proper for the Field, recommends the cultivating of the *Rapa* in plenty ; because (says he) those Roots which are not wanted for the

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Table, will be eaten by the Cattle. And yet this Plant was not much cultivated in the Fields till of late Years ; nor is the true Method of cultivating Turneps yet known, or, at least, not practis'd, in some of the distant Counties of *England*, at this time. For in many Places the Seed is sown with Barley, in the Spring ; and those Plants which come up, and live till the Barley is cut, produce a little Green for the Sheep to pick up, but never have any Roots. In other Places, where the Turnep-seed is sown by itself, the Method of hoeing them is not understood ; so that Weeds and Turneps are permitted to grow together : and where the Turneps come up thick in Patches, they are never thinned ; so that they draw up to have long Leaves, but never can have good Roots ; which is the principal Part of the Plant ; therefore should be chiefly attended to.

The general Method now practis'd in *England*, for cultivating this Plant in the Fields, is the same as is practis'd by the Farming-gardeners, who supply the *London* Markets with these Roots, and is the same as before directed. But it is only within the Compass of a few Years, that the Country-people have been acquainted with the Method of hoeing them ; so that the Farmers usually employ'd Gardeners, who had been bred up in the Kitchen-gardens, to perform this Work. And the usual Price given *per* Acre, for twice hoeing, and leaving the Crop clean, and the Plants set out properly, was seven Shillings ; at which Price the Gardeners could get so much *per* Week, as to make it worth their while to leave their Habitations, and practise this in different Counties, during the Season for this Work ; which always happens, after the greatest

greatest Hurry of Business in the Kitchen-gardens is over : so that they usually formed themselves in small Gangs of six or seven Persons, and set out on their different Routes; each Gang fixing at a Distance from the rest, and undertaking the Work of as many Farmers in the Neighbourhood, as they could manage in the Season : but as this Work is now perform'd by many Country Labourers, that Practice is lost to the Kitchen-gardeners, the Labourers doing it much cheaper.

There has also been another Method practis'd very lately, by some very curious Farmers, in cultivating of Turneps; which is, by sowing the Seed in Rows, with the Drill-plough. In some Places, the Rows are sown three Feet asunder, in others four, in some five, and some six. The latter has been recommended by some, as the most proper Distance : and although the Intervals are so large, yet the Crop produc'd on an Acre has been much greater, than upon the same Quantity of Land where the Rows have been but half this Distance; and upon all the Fields which have been drilled, the Crops have greatly exceeded those which have been hand-hoed. The late Lord Viscount *Townshend* was at the Expence of making the Trial of these two different Methods of Husbandry, with the greatest Care, by equally dividing the same Fields into different Lands, which were alternately sown in Drills, and the intermediate Lands in broad Cast. The latter were hoed by Hand, in the common Method, and the other cultivated by the Hoeing-plough; and when the Roots were fully grown, his Lordship had an equal Quantity of Land, which had been sown in different Methods, measured, and the Roots drawn up

and weighed; and those Roots which had been cultivated by the Plough, were so much larger than the other, that the Crop of one Acre weighed a Ton and an half more than that of an Acre in the other Husbandry.

But when the Turneps are sown in Drills, they will require to be hoed by Hand, to separate and cut out the Plants, where they are too near together in the Rows; as also to cut up the Weeds between the Plants where the Plough cannot reach them. If this is carefully perform'd, the plowing of the Intervals, which encourage the Growth of the Roots, by thus stirring of the Ground, will make it much better prepar'd for the Crop of Barley, or whatever else is sown the following Spring. This Method of Culture may be suppos'd to be more expensive than that commonly practis'd, by those unacquainted with it; but those who have made Trials of both, find the Horse-plowing to be much the cheapest, and by far the best. For the Country-people who are employed in Hand-hoeing of Turneps, are very apt to hurry over their Work, so that half the Weeds are left growing, and the Plants are seldom singled out so well as they should be; nor are they curious enough to distinguish the Charlock (which is one of the most common Weeds in arable Land) from the Turneps; so that about the Middle of *September* it is very common to see the Fields of Turneps full of the yellow Flowers of the Charlock. Now, in the Horse-plowing, all the Weeds in the Intervals will be intirely destroyed; so that if a few Plants in the Rows of Turneps should be overlook'd, they may be easily drawn out when they appear visible.

The greatest Evil which attends a
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Crop of Turneps, is that of their being destroyed by the Fly ; which usually happens soon after the Plants come above-ground, or while they are in the Seed-leaf ; for after they have put out their rough Leaves pretty strong, they will be past this Danger. This is always in dry Weather ; so that if there happens Rain when the Turneps come up, they will grow so fast, as to be soon out of Danger from the Fly. And it has been found, that those which have been sown in Drills have escap'd the Fly much better than those which are sown in the broad Cast : but if Soot is sown along the Surface of each Drill, it will be of great Service to keep off the Fly ; and a small Quantity of it will be sufficient for a large Field, where the Drills only are to be cover'd.

Another Danger of the Crops being destroyed, is from the Caterpillers, which very often attack them, when they are grown so large as to have six or eight Leaves on a Plant. The surest Method of destroying these Insects is, to turn a large Parcel of Poultry into the Field ; which should be kept hungry, and turn'd early in the Morning into the Field. These Fowls will soon devour the Insects, and clear the Turneps. To this Evil the Turneps which are sown in Drills are not so much expos'd ; for as the Ground between the Rows will be kept stirr'd, the Plants will be kept growing ; so will not be in Danger of suffering from these Insects ; for the Parent-insects never deposit their Eggs upon any Plants which are in Health ; but as soon as they are flinted, they are immediately cover'd with the Eggs of these Insects. And this holds in general with Vegetables as with Animals, which are seldom attack'd by Vermin when they are in perfect

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Health ; so that it is the Disease which occasions the Vermin, and not the Vermin the Disease, whereas, when they become unhealthy, they are soon overspread as is commonly imagin'd. Now as the Plants will always be in greater Health when the Ground is well stirr'd about them, so there will be less Danger of their suffering from these Enemies, when they are cultivated by the Horse-hoe, than in the common way.

When the Turneps are sown in Drills, it will be the best way to hoe between every other Row at first, and, some time after, to hoe the alternate Intervals ; by which Method, the Plants will receive more Benefit from the often stirring of the Ground, than they would do, if all the Intervals were hoed at one time ; and the Plants will be in less Danger of suffering from the Earth being thrown up too high on some Rows, while others may be left too bare of Earth : but when the Earth has been thrown up on one Side of the Drill, it may be turned down again before the next Interval is hoed. And this alternate moving of the Earth will prepare the Ground very well for the succeeding Crop, as well as greatly improve the Turneps. But as this Plough cannot well be drawn nearer to the Drills than two or three Inches, the remaining Ground should be forked to loosen the Parts, and make way for the Fibres of the Roots to strike out into the Intervals ; otherwise, if the Land is strong, it will become so hard in those Places which are not stirr'd, as to stint the Growth of the Turneps. And this may be done at a small Expence ; a good Hand will perform a great deal of this Work in a Day ; and whoever will make Trial, will find their Account in practising it ;

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it ; especially on all strong Land, where the Turneps are much more liable to suffer from the binding of the Ground, than they will be on a loose Soil ; but yet, in all Sorts of Ground, it will be of great Service to practise this.

When the Ground is thus stirr'd in every Part, one Plowing will be sufficient, after the Turneps are eaten, for the sowing of Barley, or any other Crop ; so that there will be an Advantage in this, when the Turneps are kept late on the Ground, as will be often the Case, especially when they are cultivated for feeding of Ewes, because it is often the Middle of *April* before the Ground will be cleared : for the late Feed in the Spring, before the natural Grass comes up, is the most wanted, where Numbers of Sheep or Ewes are maintain'd ; and one Acre of Turneps will afford more Feed, than fifty Acres of the best Pasture, at that Season.

In *Norfolk*, and some other Counties, they cultivate great Quantities of Turneps for feeding of Black Cattle, which turns to great Advantage to their Farms ; for hereby they procure a good Dressing for their Land : so that they have extraordinary good Crops of Barley upon those Lands, which would not have been worth the plowing, if it had not been thus husbanded.

When the Turneps are fed off the Ground, the Cattle should not be suffer'd to run over too much of the Ground ; for if they are not confin'd by Hurdles to as much as is sufficient for them one Day (and these should be every Day remov'd forward, the Cattle will spoil three times the Quantity of Turneps they can eat ; so that it is very bad Husbandry to give them too much room.

I cannot omit taking notice of a common Mistake, which has gene-

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rally prevailed with Persons who have not been well inform'd to the contrary ; which is, in relation to the Mutton which is fatted with Turneps, most People believing it to be rank and ill-tasted ; whereas it is a known Fact, that the best Mutton this Country affords, is all fatted on Turneps ; and that rank Mutton, whose Fat is yellow, is what the low marshy Lands of *Lincolnshire*, and other rank Pastures, produce.

In order to save good Turnep-seeds, you should transplant some of the fairest Roots in *February*, placing them at least two Feet asunder each Way, observing to keep the Ground clear from Weeds, until the Turneps have spread so as to cover the Ground, when they will prevent the Weeds from growing ; and when the Pods are formed, you should carefully guard them against the Birds, otherwise they will devour it, especially when it is near ripe ; at which time you should either shoot the Birds as they alight upon the Seed, or lay some birdlim'd Twigs upon it, whereby some of them will be caught ; and if they are permitted to remain some time, and afterward turn'd loose, they will prevent the Birds from coming thither again some time, as I have experimented. When the Seed is ripe, it should be cut up, and spread to dry in the Sun ; after which it may be thresh'd out, and preserved for Use.

RAPHANISTRUM, Charlock.

This differs from the Radish, in having a jointed Pod, containing one roundish Seed in each Joint.

There are several Varieties of this Plant, two of which grow wild in *England* ; the others are Natives of *France*, *Spain*, and *Italy* ; but as they are Weeds which grow frequently on arable Land, I shall not enumerate the Varieties.

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RAPHANUS, Radish.

The Characters are;

The Flower consists of four Leaves, which are placed in form of a Cross: out of the Flower-cup rises the Pointal, which afterward turns to a Pod in form of an Horn, that is thick, spongy, and furnish'd with a double Row of roundish Seeds, which are separated by a thin Membrane.

The species are;

1. *RAPHANUS minor oblongus*. C. B. P. Small oblong or common Radish.
2. *RAPHANUS niger major rotundus*. Mor. Hist. Great round black Radish, commonly call'd The Spanish Radish.
3. *RAPHANUS major orbicularis, floribus candidis*. C. B. P. Great round-rooted Radish, with white Flowers.
4. *RAPHANUS minor oblongus pyriformis, vulgo Ramurazza*. Hort. Cath. The lesser Radish, with an oblong pear-shap'd Root.
5. *RAPHANUS major orbicularis, vel rotundus*. C. B. P. Greater Radish, with a round Root, commonly call'd White Spanish Radish.

The first Sort here mention'd is that which is commonly cultivated in Kitchen-gardens for its Root; of which there are several Varieties, as the Small-topp'd, the Deep-red, and the Long-topp'd strip'd Radish; all which are Varieties arising from Culture. The small-topp'd Sort is most commonly preferr'd by the Gardeners near London; because they require much less room than those with large Tops, and may be left much closer together; and as the forward Radishes are what produce the greatest Profit to the Gardener, so these being commonly sown upon Borders near Hedges, Walls, or Pales, if they are of the large-topp'd Sort, they will be apt to grow

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mostly at Top, and not swell so much in the Root as the other, especially if they are left pretty close.

The Seasons for sowing this Seed are various, according to the time when they are desired for Use; but the earliest Season is commonly toward the Latter-end of October, when the Gardeners near London sow them to supply the Market; and these, if they do not miscarry, will be fit for Use in March following, which is full as soon as most People care to eat them. These (as I said before) are commonly sown on warm Borders, near Walls, Pales, or Hedges, where they may be defended from the cold Winds.

The second Sowing is commonly about Christmas, provided the Season be mild, and the Ground in a fit Condition to work: these are sown near Shelter, but not so near Pales and Hedges as the first Sowing. These, if they are not destroy'd by Frost, will be fit for Use the Beginning of April: but in order to have a Succession of these Roots for the Table through the Season, you should repeat sowing of their Seeds once a Fortnight, from the Middle of January till the Beginning of April; always observing to sow the latter Crops upon a moist Soil, and an open Situation; otherwise they run up, and grow sticky, before they are fit for Use.

Many of the Gardeners near London sow Carrot-feed with their early Radishes; so that when their Radishes are kill'd, the Carrots will remain: for the Seeds of Carrots commonly lie in the Ground five or six Weeks before they come up, and the Radishes seldom lie above a Fortnight under ground; so that these are often up, and kill'd, when the Carrot-feed remains safe in the Ground; but when both Crops succeed,

ceed, the Radishes must be drawn off very young; otherwise the Carrots will be drawn up so weak, as not to be able to support themselves when the Radishes are gone.

It is also a constant Practice with these Gardeners, to mix Spinach-seed with their latter Crop of Radishes; so that when the Radishes are drawn off, and the Ground clean'd between the Spinach, it will grow prodigiously, and in a Fortnight's time will as completely cover the Ground, as though there had been no other Crop. And this Spinach, if it be of the broad-leav'd Kind, will be larger and fairer than it commonly is when by itself; because where People have no other Crop mix'd with it, they commonly sow it too thick, whereby it is drawn up weak; but here the Roots stand pretty far apart, so that after the Radishes are gone, they have full room to spread; and if the Soil be good, it is a prodigious Size this Spinach will grow to, before it runs up for Seed: but this Husbandry is chiefly practis'd by such Gardeners as pay very dear for their Land, and are oblig'd to have as many Crops in a Year as possible, otherwise they could not afford to pay such large Rents.

When the Radishes are come up, and have got five or six Leaves, they must be pull'd up where they are too close; otherwise they will draw up to top, but the Roots will not increase their Bulk. In doing of this, some only draw them out by Hand: but the best Method is, to hoe them with a small Hoe, which will stir the Ground, and destroy the young Weeds, and also promote the Growth of the Plants. The Distance which these should be left, if for drawing up small, may be three Inches; but if they are to stand until they are

pretty large, six Inches are full near enough; and a small Spot of Ground will afford as many Radishes at each sowing, as can be spent in a Family while they are good.

If you intend to save Seeds of your Radishes, you should, at the Beginning of *May*, prepare a Spot of Ground in proportion to the Quantity of Seeds intended (but you should always make Allowance for bad Seasons; because it often happens, in a very dry Season, that there will not be a fourth Part of the Quantity of Seeds upon the same Proportion of Ground as there will be in a moist Season). This Ground should be well dug and levell'd; then you should draw up some of the straitest and best-colour'd Radishes (throwing away all such as are short, and that branch out in their Roots): these should be planted in Rows three Feet Distance, and two Feet asunder in the Rows; observing, if the Season be dry, to water them until they have taken Root; after which they will require no farther Care, but only to hoe down the Weeds between them, until they are advanced so high, as to spread over the Ground, when they will prevent the Growth of Weeds.

When the Seed begins to ripen, you should carefully guard it against the Birds, which will otherwise destroy it. When it is ripe (which you may know by the Pods changing brown), you should cut it, and spread it in the Sun to dry; after which you should thresh it out, and lay it up for Use, where the Mice cannot come to it, otherwise they will eat it up.

The small round-rooted Radish is not very common in *England*; but in many Parts of *Italy* it is the only Sort cultivated. The Roots of this Kind are many times as large as a

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small Turnep, and are very sweet. This may be propagated in the same manner as the common Sort; but only with this Difference; viz. That this must not be sown till the Beginning of *March*, and the Plants allow'd a greater Distance. The Seeds of this Kind are very subject to degenerate when sav'd in *England*; so that it is proper to have them from Abroad every Year.

The other round-rooted Radishes are rarely cultivated in *England*; but those who have a mind to have them, may sow them in the same manner as the last.

The Black and White *Spanish* Radishes are commonly cultivated for medicinal Use; though there are some who are very fond of them for the Table. These are commonly sown about the Middle of *July*, or a little earlier; and they are fit for the Table by the End of *August*, or the Beginning of *September*; and they will continue good till the Frost spoils them. These must be thinned to a greater Distance than the common Sort; for the Roots of these grow as large as Turneps; therefore should not be left nearer together than six Inches.

Some Persons who are very curious to have these Roots in Winter, draw them out of the Ground before the hard Frost comes on, and lay them up in dry Sand, in the same manner as is practis'd for Carrots; being careful to guard them from Wet and Frost; and by this Method they preserve them till the Spring.

RAPISTRUM, Charlock, or Wild Mustard.

There are two or three *Species* of this Plant, one of which grows wild in *England*; the other two are Weeds in the South of *France*, *Italy*, and *Spain*. These are never pre-

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serv'd, except by Botanists for Variety.

RAPUNCULUS, Rampions.

The *Characters* are;

The Flower consists of one Leaf, in its Form approaching to a Bell-shape; but is so expanded and cut, that it almost represents the Figure of a Star: the Pointal is commonly split into two horned Divisions, and the Flower-cup becomes a Fruit, which is divided into three Cells, inclosing many small Seeds.

The *Species* are;

1. **RAPUNCULUS spicatus**. C. B. P. Spiked Rampion.

2. **RAPUNCULUS spicatus albus**. C. B. P. Spiked Rampion, with a white Flower.

3. **RAPUNCULUS Alpinus corniculatus**. C. B. P. Horned Rampion of the Alps.

4. **RAPUNCULUS scabiosæ capitulo cœruleo**. C. B. P. Rampion with blue scabious-like Heads.

5. **RAPUNCULUS scabiosæ capitulo albo**. C. B. P. Rampion with white scabious-like Heads.

6. **RAPUNCULUS spicatus, flore flavescente**. Inst. R. H. Spiked Rampion, with a yellowish Flower.

7. **RAPUNCULUS Creticus, seu pyramidalis altera**. C. B. P. Pyramidal Rampion of Crete.

8. **RAPUNCULUS folio gramineo**. Inst. R. H. Grass-leav'd Rampion.

9. **RAPUNCULUS Creticus petromarula, flore albo**. Tourn. Cor. Rampion of Crete, with a white Flower.

10. **RAPUNCULUS Orientalis, foliis angustis dentatis**. Tourn. Cor. Eastern Rampion, with narrow indented Leaves.

11. **RAPUNCULUS Orientalis angustifolius multicaulis totus floridus**. Tourn. Cor. Eastern narrow-leav'd Rampion, with many Stalks, filled with Flowers.

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12. *RAPUNCULUS Orientalis, campanulæ pratensis folio.* Tourn. Cor. Eastern Rampion, with a Meadow-bell-flower-leaf.

13. *RAPUNCULUS Orientalis, foliis longioribus, asperis & rigidis.* Tourn. Cor. Eastern Rampion, with longer rough stiff Leaves.

14. *RAPUNCULUS Orientalis altissimus, foliis glabris & rigidis.* Tourn. Cor. The tallest Eastern Rampion, with smooth stiff Leaves.

15. *RAPUNCULUS Orientalis, hesperidis folio.* Tourn. Cor. Eastern Rampion, with a Dames-violet-leaf.

These are all of them hardy Plants, which will thrive in the open Air. They are propagated by Seed, which should be sown in Autumn; for if they are kept out of the Ground till the Spring, they frequently fail. These Seeds should be sown on a Bed of fresh undunged Earth, where they are designed to remain; for they do not thrive so well when they are transplanted. Therefore the best Method is, to make small Drills cross the Bed, about eighteen Inches asunder, and sow the Seeds therein: then cover them lightly over with Earth; for if they are buried too deep, they will rot in the Ground. In about a Month after the Seeds are sown, the Plants will come up, when they should be diligently weeded; which is all the Care they will require till Spring; at which time the Plants should be thinned where they are too close, so as to leave them six or seven Inches apart in the Rows; and afterward they require no farther Attention but to keep them clear from Weeds. In June the Plants will flower, and if the Summer prove favourable, they will produce ripe Seeds.

As these Plants do not continue above two or three Years, there

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should be Seeds sown every other Year, to continue the Sorts; for they are Plants which require little Trouble to cultivate them, and their Flowers make a pretty Variety in large Gardens; therefore they should be allowed a Place amongst other hardy Flowers.

RAPUNTIIUM, Rampions, or Cardinal's Flower.

The Species are;

The Flower consists of one Leaf, which is of an anomalous Figure, hollowed like a Pipe, and furrow'd or chanell'd; divided, as it were, into many Parts, in the Shape of a Tongue, defended by a Vagina or Covering, which enfolds the Pointal: when the Flowers decay, the Flower-cup turns to a Fruit, divided into three Cells full of small Seeds, which adhere to a Placenta, which is divided into three Parts.

The Species are;

1. *RAPUNTIIUM maximum, coccineo spicato flore.* Col. in Rech. Greater Rampions, with a crimson spiked Flower, commonly call'd The scarlet Cardinal's Flower.

2. *RAPUNTIIUM Americanum, flore dilute cœruleo.* H. R. Par. The blue Cardinal's Flower.

3. *RAPUNTIIUM Americanum, virgæ aureæ foliis, parvo flore cœruleo.* Tourn. Cardinal's Flower with Golden-rod-leaves, and a small blue Flower.

4. *RAPUNTIIUM Americanum, floribus albis.* Inst. R. H. American Cardinal Flower, with white Flowers.

5. *RAPUNTIIUM Americanum, coccineo flore, lineis albis eleganter picto.* Inst. R. H. American Cardinal Flower, with a scarlet Flower, elegantly striped with White.

6. *RAPUNTIIUM Americanum altissimum, foliis cirsi, flore virescente.* Plum. Cat. The tallest American Cardinal

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dinal Flower, with Leaves like the Melancholy-thistle, and greenish Flowers.

7. *RAPUNTIIUM Americanum, foliis cirsii lucidis, flore multiplici coccineo conglobato. Plum. Cat. American Cardinal Flower*, with shining Melancholy-thistle-leaves, and many scarlet Flowers growing in Clusters.

8. *RAPUNTIIUM Americanum, trachelii folio, flore purpurascens. Plum. Cat. American Cardinal Flower*, with a Throatwort-leaf, and a purplish Flower.

9. *RAPUNTIIUM Americanum, foliis oblongis, floribus parvis cæruleis, spica longissima. American Cardinal Flower*, with oblong Leaves, and small blue Flowers, growing in a long Spike.

10. *RAPUNTIIUM urens Soloniense. Mor. H. R. Blæss. Burning Cardinal Flower of Blois.*

11. *RAPUNTIIUM urens, flore purpureo-cæruleo. Inst. R. H. Burning Cardinal Flower*, with a bluish-purple Flower.

12. *RAPUNTIIUM Africanum minus angustifolium, flore violaceo. Inst. R. H. Lesser narrow-leav'd African Cardinal Flower*, with a violet-colour'd Flower.

13. *RAPUNTIIUM Æthiopicum, violaceo galeato flore, foliis pinastri. Breyn. Cent. Ethiopian Cardinal Flower*, with a violet galeated Flower, and Leaves like the Pinaster.

14. *RAPUNTIIUM Æthiopicum, cæruleo galeato flore, foliis coronopi. Breyn. Cent. Ethiopian Cardinal Flower*, with a blue galeated Flower, and Leaves like Bucks-horn-plantain.

15. *RAPUNTIIUM Æthiopicum, cæruleo galeato flore, foliis dentatis. Breyn. Cent. Ethiopian Cardinal*

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Flower, with a blue galeated Flower, and indented Leaves.

16. *RAPUNTIIUM Canadense pumilum, linariæ folio. Sarrac. Low Canady Cardinal Flower*, with a Toadflax-leaf.

17. *RAPUNTIIUM Creticum minimum, bellidis folio, flore maculato. Tourn. Cor. The least Cardinal Flower of Crete*, with a Daisy-leaf, and a spotted Flower.

The first Sort is greatly prized by the Curious for the Beauty of its rich crimson Flowers, which exceed all the Flowers I have yet seen, in the Deepness of its Colour: and these commonly, when their Roots are strong, produce large Spikes of these Flowers, which continue a long time in Beauty, and make a most magnificent Shew amongst other Flowers. The time of their Flowering is commonly in *July* and *August*; and if the Autumn proves very favourable, they will sometimes produce good Seeds in *England*. These Plants are Natives of *Virginia* and *Carolina*, where they grow by the Sides of Rivulets, and make a most beautiful Appearance; from whence the Seeds are often sent into *England*. These Seeds commonly arrive here in the Spring; at which time they should be sown in Pots fill'd with light Earth, and but just cover'd over; for if the Seeds are buried deep, they will not grow. These Pots should be placed under a Frame, to defend them from Cold, until the Season is a little advanc'd; but they should not be plac'd on an Hot-bed, which will injure the Seeds.

When the Weather is warm, toward the Middle of *April*, these Pots should be placed in the open Air, in a Situation where they may have the morning Sun till Twelve of the Clock, observing to water them constantly

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stantly in dry Weather ; and when the Plants are come up, and are grown pretty strong, they should be transplanted each into a small Pot fill'd with fresh light Earth, and placed in the same Situation, observing to water them in dry Weather ; and in Winter they should be placed under an Hot-bed-frame, where they may be shelter'd from severe Frosts ; but in mild Weather they should be as much exposed to the open Air as possible.

The *March* following these Plants should be put into larger Pots fill'd with the same fresh Earth, and plac'd, as before, to the morning Sun ; observing to water them in dry Weather, which will cause them to flower strong the Autumn following.

These Plants are also propagated by parting of their Roots : the best Season for which is, either soon after they are past Flower, or in *March*; observing to water and manage them, as hath been directed for the seedling Plants, both in Winter and Summer.

The blue Sort constantly produces ripe Seeds in *England*, which should be sown soon after they are ripe : in the Spring following the Plants will come up, when they should be transplanted and manag'd as the other Sort ; with which Culture this will also agree. This is preserv'd for Variety ; but the Flowers are not near so beautiful as those of the former Sort.

The third Sort hath small blue Flowers, and is an annual Plant, perishing as soon as the Seeds are ripe. This may be raised in the same manner as the former ; but is scarcely worthy of a Place in the Flower-garden.

The fourth Sort is a Variety of the second, from which it differs only in the Colour of the Flower ; and

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the fifth Sort is a Variety of the first ; but neither of these Variations are lasting : for from the Seeds which I have saved from these, and sown, I had scarce one Plant which prov'd of the same Colours as the Parent-plants.

The sixth and seventh Sorts seem to be only Varieties of each other. The sixth Sort I have propagated several times, and have had the Plants produce Flowers ; but the seventh I have not yet seen in Flower. These were collected by Mr. *Robert Millar* in *Jamaica*.

The eighth Sort is an annual Plant : if the Seeds of this are permitted to scatter in the Pots, and are shelter'd in Winter, the Plants will come up in plenty, and require little more Care than to transplant them into Pots, and place them in a warm Situation.

The ninth Sort is a biennial Plant, which perishes soon after the Seeds are ripe. This produces very small blue Flowers, growing in long slender Spikes ; so makes but an indifferent Appearance.

The tenth Sort is an hardy Plant, so may be sown in the common Ground ; and if the Season proves favourable, the Plants will flower, and perfect their Seeds the same Year ; and, in a warm Situation, the Plants will live through the Winter. The eleventh is only a Variety of this.

The twelfth, thirteenth, fourteenth, and fifteenth Sorts are annual Plants, which perish as soon as their Seeds are ripe. The Flowers of these are small ; so are not much valued.

The sixteenth and seventeenth Sorts are also pretty hardy ; but as they have little Beauty, are seldom preserv'd in Gardens.

RAUVOLFIA.

The

The Characters are;

*It hath a tubulous Flower consist-
ing of one Leaf, whose upper-Part
spreads open into a plain Surface, and
is cut into several Parts; from whose
Cup arises the Pointal, fixed like a
Nail, which afterward becomes an
almost globular soft Fruit, full of
Milk, in which are contained one or
two hard Seeds.*

The Species are;

1. *RAUVOLFIA tetraphylla angu-
stifolia. Plum. Nov. Gen.* Four-leav'd
Rauvolfia, with narrow Leaves.

2. *RAUVOLFIA tetraphylla lati-
folia. Plum. Nov. Gen.* Four-leav'd
Rauvolfia, with broad Leaves.

This Name was given to this
Genus of Plants by Father *Plumier*,
who was the Person that discover'd
them in *America*, in Honour to *Leo-
nard Ravwolf*, who was a curious
Botanist, and flourish'd about the
Year 1583. He travell'd into the
Holy Land, and several other Places
in the East, and publish'd his Travels
in *High-Dutch*, which were trans-
lated into *English* under the Inspection
of the great Mr. *Ray*.

These Plants grow plentifully at
Campechy, from whence I receiv'd their
Seeds, which were collected by Mr.
Robert Millar, Surgeon.

The Seeds of these Plants should
be sown in Pots fill'd with fresh
Earth, and plung'd into an Hot-bed
of Tanners Bark; for as they are
very hard, they frequently remain a
long time in the Ground: therefore
when they are in Pots, they may be
shifted from one Bed to another, as
their Heat decays. When the Plants
come up, they must be frequently
refresh'd with Water; but it must
not be given them in large Quanti-
ties; for the Plants are succulent,
and full of a milky Juice; so are in
Danger of rotting with too much
Moisture. They should also have a

large Share of fresh Air admitted to
them in warm Weather; and when
they are about two Inches high, they
should be transplanted each into a
separate small Pot filled with fresh
light Earth, and then plunged into
the Hot-bed again; observing to
shade them from the Sun, until they
have taken new Root; after which
time they should have free Air ad-
mitted to them every Day, in pro-
portion to the Warmth of the Season.
In this Hot-bed the Plants may re-
main till toward *Michaelmas*, when
they should be removed into the
Stove, and plunged into the Tan-
ners Bark, where they must be kept
warm, and not have too much Moist-
ure in cold Weather, lest it rot
them.

As these Plants are Natives of
very hot Countries, so they will not
live in the open Air in *England*;
therefore they should constantly re-
main in the Stove; and if they re-
main in the Bark-bed, they will
thrive much faster, than when they
are placed on Stands in a dry Stove.
But in the Summer-season they
should have a large Share of fresh
Air admitted to them; and the
Leaves of the Plants must be now-
and-then washed with a Sponge, to
clear them from the Filth they are
apt to contract; which, if suffer'd to
remain, will retard the Growth of
the Plants. Where this Care is taken
of them, they will thrive very fast,
and the second Year will produce
Flowers, and continue so to do for
many Years; and will perfect their
Seeds in *England*. They may also
be propagated by Cuttings, which
should be laid to dry for two or
three Days before they are planted;
and then should be plung'd into a
moderate Hot-bed of Tanners Bark,
observing to shade them until they
have taken Root; after which time
they

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they may be treated as the seedling Plants.

RESEDA, Bastard-rocket.

The Characters are;

It hath a polypetalous anomalous Flower, composed of several dissimilar Petals, out of whose Cup arises the Pointal, which after-ward becomes a membranaceous Fruit, for the most part three or four-cornered, oblong, and, as it were, cylindraceous, pregnant with roundish Seeds.

The Species are;

1. RESEDA *vulgaris*. C. B. P. Common Bastard-rocket.

2. RESEDA *crispa* Gallica. Bocc. Rar. Pl. Curled French Bastard-rocket.

3. RESEDA *latifolia*, flore flavo. Mor. Hist. Broad-leav'd Bastard-rocket, with a yellow Flower.

4. RESEDA *foliis calcitrapæ*, flore albo. Mor. H. R. Blas. Bastard-rocket with Star-thistle-leaves, and a white Flower.

5. RESEDA *minor vulgaris*. Inst. R. H. Smaller common Bastard-rocket.

6. RESEDA *minor vulgaris*, folio minus inciso. Inst. R. H. Smaller common Bastard-rocket, with a Leaf less cut.

7. RESEDA *minor vulgaris*, foliis integris. Inst. R. H. Small common Bastard-rocket, with whole Leaves.

8. RESEDA *Pyrenaica*, linariæ folio glauco. Schol. Bot. Pyrenean Bastard-rocket, with a glaucous Toad flax-leaf.

9. RESEDA *Ægyptiaca minor*, floribus fragrantissimis. The Mignonette d'Egypt, or small sweet-scented Reseda.

These Plants are preserved in the Gardens of some Persons, who are curious in Botany; but at present they are not used in Medicine. All of them, but the last, are very hardy Plants, which are propagated by Seeds:

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these should be sown in the Spring, on an open Bed of fresh undunged Earth, in the Place where they are design'd to remain; and when the Plants come up, they should be hoed to separate them, where they are too close, as also to destroy the Weeds. The four first Sorts should be allowed eighteen Inches, or two Feet; but the other Sorts, being of less Growth, do not require above half that room. The Weeds should be constantly hoed down between the Plants when they arise, which is all the Culture the Plants require. Some of these Plants will flower the same Year they are sown, when they come up early in the Spring; but in general they do not flower till the second Year, when they produce their Seeds, and the Plants commonly perish soon after. If the Seeds of these Plants are permitted to scatter, the Plants will come up, and stock the Ground, so as to become Weeds.

The ninth Sort hath been lately introduced into the English Gardens. The Plants of this Sort are generally annual, and perish soon after their Seeds are ripe; though if the Plants are placed in a warm Stove in the Autumn, they may be preserv'd thro' the Winter, and the Plants will keep constantly in Flower.

This Sort should be sown on a moderate Hot-bed in March; and when the Plants are strong enough to transplant, they should be pricked out upon another moderate Hot-bed to bring them forward: but the Plants should have a large Share of Air in warm Weather, otherwise they will draw up very weak. About the Latter-end of May the Plants may be planted out, some into Pots, to place near the Apartments; and others into warm Borders, where they may remain to flower and feed. For the Plants which grow in the full

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full Ground, often produce more Seeds than those which are in Pots : but at the time when the Seed-vessels begin to swell, the Plants are frequently infested with green Caterpillers, which, if they are not destroyed, will eat off all the Seed-vessels.

The Flowers of this Plant have a strong Scent like fresh Raspberries, which will spread over a Room in which two or three Plants are plac'd; and for this are greatly esteem'd.

RHABARBARUM MONACHORUM. *Vide* Lapathum.

RHAMNOIDES, The Sea Buckthorn.

The Characters are ;

It hath the whole Appearance of the Buckthorn ; but is Male and Female in different Trees : the Flowers of the Male have no Petals : the Flower-cup consists of two Leaves, in the Centre of which are several small Stamina : the Female Trees produce roundish Berries, each of which contains a single Seed.

The Species are ;

1. **RHAMNOIDES florifera, salicis foliis.** T. Cor. Male willow-leav'd Sea Buckthorn.

2. **RHAMNOIDES fructifera, foliis salicis, baccis leviter flavescens.** T. Cor. Female willow-leav'd Sea Buckthorn, with yellow Berries.

These Plants grow in great Plenty upon the Sea-coasts of *Lincolnshire*, and at *Sandwich, Deal, and Folkeston*, in *Kent* ; as also in divers Parts of *Scotland*.

They are preserv'd in several Gardens near *London* for Variety ; where, being intermix'd with other Shrubs of the same Growth, they afford an agreeable Prospect.

These Shrubs are easily propagated from Suckers, which they send forth in great Plenty from the

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old Plants. These Suckers may be taken off any time in *February* or *March*, and planted in a Nursery, where they may be train'd up for two or three Years ; after which they may be remov'd to the Places where they are to remain. There is no very great Beauty in these Plants ; but as their Leaves and Flowers are very different from most other Trees, they make a pretty Variety in small Wilderness-quarters ; or, when planted in Clumps with various Trees, they will grow to be ten or twelve Feet high ; but it is very rare to see them larger.

RHAMNUS, The Buckthorn.

The Characters are ;

It hath a funnel-shap'd Flower, consisting of one Leaf, which is divided toward the Top into four or five Segments : out of the Flower-cup rises the Pointal, which afterward becomes a soft roundish Berry, very full of Juice, inclosing four hard Seeds, which are round and smooth on the Outside, but flatted on the other.

The Species are ;

1. **RHAMNUS catharticus.** C.B.P. Common purging Buckthorn.

2. **RHAMNUS catharticus minor.** C. B. P. Lesser purging Buckthorn.

3. **RHAMNUS Hispanicus, folio buxi, minor.** Tourn. Lesser Spanish Buckthorn, with a Box-leaf.

4. **RHAMNUS catharticus minor, folio longiori.** Inst. R. H. Lesser purging Buckthorn, with a longer Leaf.

5. **RHAMNUS tertius, flore herbaceo, baccis nigris.** C. B. P. *Clusius's* third Buckthorn, with an herbaceous Flower, and black Berries.

6. **RHAMNUS Hispanicus, buxi folio ampliore.** Inst. R. H. Spanish Buckthorn, with a larger Box-leaf.

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7. RHAMNUS *Hispanicus, oleæ folio*. Inst. R. H. *Spanish* Buckthorn, with an Olive-leaf.

8. RHAMNUS *Hispanicus, hyperici folio*. Inst. R. H. *Spanish* Buckthorn, with a St. John's-wort-leaf.

9. RHAMNUS *Creticus, amygdali folio minori*. Tourn. Cor. Candy Buckthorn, with a smaller Almond-leaf.

10. RHAMNUS *Orientalis, alaterni folio*. Tourn. Cor. Eastern Buckthorn, with an Alaternus-leaf.

11. RHAMNUS *Creticus, buxi folio minori*. Tourn. Cor. Eastern Buckthorn, with a smaller Box-tree-leaf.

12. RHAMNUS *Orientalis, amygdali folio ampliore*. Tourn. Cor. Eastern Buckthorn, with a larger Almond-leaf.

The first of these Trees is very common in the Hedges in divers Parts of *England*; the Berries of which are order'd by the College of Physicians for medicinal Use; but particularly for making a Syrup, which was formerly in great Use; but of late the Persons who supply the Markets, have gather'd several other Sorts of Berries, which they have either mixed with those of the Buckthorn, or have wholly substituted them in their place. These are the Berries of the *Frangula, Cornus fœmina*, &c. which Mixture hath spoiled the Syrup, and render'd it less esteem'd. But whoever purchases the Buckthorn-berries, may distinguish whether they are right or not, by opening them, and observing the Number of Seeds in each; for these have commonly four, whereas the *Frangula* has but two, and the *Cornus fœmina* but one; as also by bruising of the Berries on white Paper, the Juice giving a green Tincture.

The second Sort is less common in *England*, and only to be found in Gardens where it is cultivated for

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Variety. Both these Sorts may be propagated by laying down their tender Branches in Autumn; which, if duly water'd in dry Weather the succeeding Summer, will take Root in the Compass of one Year; and may then be transplanted, either where they are to remain, or in some Nursery, to be train'd up for a few Years, and then remov'd to their Places of Growth.

The first Sort will grow to the Height of eighteen or twenty Feet; but, being a straggling Grower, is seldom much cultivated in Gardens.

The second Sort seldom rises above five Feet high; therefore should be planted amongst Shrubs of the same Growth; where it will add to the Variety, though it has little more Beauty than the former.

They may also be propagated by Seeds, which must be sown on a Bed of fresh Earth, soon after they are ripe; the Spring following the Plants will appear, when they must be carefully clean'd from Weeds; the Autumn following they may be transplanted out, and managed as the Layers.

The third Sort is also preserv'd in several curious Gardens for Variety: this produces vast Quantities of purple Flowers most Part of the Summer, and many times ripens its Seeds in *England*. This may be propagated by laying down the tender Branches in the Spring, which will take Root by the Spring following, when they should be planted into Pots; and require to be housed in Winter, though they need only be shelter'd from the extreme Frost; but should have as much free Air as possible in mild Weather, and in Summer must be often water'd. It delights in a fresh light Soil, and requires to be often remov'd; because the Roots increase

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increase so greatly, as to fill the Pots in a short time.

The fourth, fifth, sixth, seventh, and eighth Sorts grow wild in the Woods in *Spain, Portugal, Italy,* and the South of *France*; and, for Variety, some of the Sorts have been admitted into the *English Gardens*, though they are Plants of little Beauty. These grow to the Height of six or eight Feet, and are hardy enough to live through the Winter in the open Air in *England*.

The ninth, tenth, eleventh, and twelfth Sorts grow in the Islands of the *Archipelago*, where *Dr. Tournefort* collected their Seeds, and sent them to the Royal Garden at *Paris*. These are also hardy enough to live in the open Air in *England*, and are all of them Shrubs growing about the same Height as the former.

These may all be propagated by laying down their Branches in the same manner as hath been before directed for the other Sorts, or from the Seeds: the latter Method is to be preferr'd, where the Seeds can be procured; because those Plants which arise from Seeds, will always be stronger, and grow erect; whereas those which come from Layers, are very subject to shoot out lateral Branches, whereby they are retarded in their upright Growth.

RHUS, The Sumach-tree.

The Characters are;

The Flowers consist of five Leaves, which are placed in a circular Order, and expand in form of a Rose; from whose Flower-cup rises the Pointal, which afterward becomes a roundish or almost kidney-shap'd Vessel, containing one Seed of the same Shape: to which Marks may be added, The Flowers growing in Bunches, and the Leaves are either winged, or have three Lobes.

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The Species are;

1. RHUS folio ulmi. C. B. P. Elm-leav'd Sumach.

2. RHUS Virginianum. C. B. P. Virginian Sumach, by some falsely call'd The Stag's-horn-tree.

3. RHUS Americanum, panicula sparsa herbacea, ramis patulis glabris. Hort. Elth. American Sumach, with loose herbaceous Panicles, and smooth Branches, commonly call'd New-England Sumach.

4. RHUS Canadense, folio longiori, utrinque glabro. Inst. R. H. Canady Sumach, with a longer Leaf, smooth on each Side.

5. RHUS tenuifolia Virginiana humilis: Rhus angustifolium. C. B. P. Pluk. Alm. Dwarf Virginian Sumach, with narrow Leaves.

6. RHUS Africanum trifoliatum majus, foliis subtus argenteis acutis, & margine incis. Pluk. Phyt. Great African three-leav'd Sumach, with narrow Leaves cut on their Edges, and white underneath.

7. RHUS Africanum trifolium minus glabrum, splendente folio subrotundo integro; forte Lentiscus Africanus triphyllos quorundam. Pluk. Phyt. Lesser three-leav'd African Sumach, with a whole roundish shining smooth Leaf.

8. RHUS Africanum trifoliatum majus, folio subrotundo integro, molli & incano. Pluk. Phyt. Greater three-leav'd African Sumach, with a whole roundish woolly Leaf.

The first Sort grows plentifully in the warm Parts of *Europe*, as also in *Turky*, where the Branches are used for Tanning of Leather; and altho' this is a Native of *Europe*, yet it is more rare in the *English Gardens*, than any of the *American Kinds*. This grows to the Height of six or eight Feet, and will resist the Cold of the ordinary Winters in *England*;
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but in severe Frost the Plants are often destroyed.

The Leaves of this Sort are much rounder than those of the *American* Kinds, and each Lobe is shaped somewhat like the Leaves of Elm; but there are many of these *Pinnæ* on each Mid-rib, so that it hath as long pennated Leaves as any of the other; wherefore the Title of Elm-leaf is very improperly applied to this Plant: however, as it has been generally known by that Name, I have chosen to continue it.

The second Sort is very common in many Gardens, where it endures the severest Cold of the Winters in the open Air; and is usually intermixed, in small Wilderness-quarters, amongst other Trees of the like Growth, where it affords an agreeable Variety. This produces Bunches of small Flowers in *June*, at the Extremities of the Branches, which are succeeded by Seeds, which are inclosed in red Covers; so that the whole Spikes appear of a fine red Colour. These Bunches are sometimes used in Dyeing; and the Branches of the Trees are used for Tanning of Leather in *America*, where these Trees grow in plenty.

This Tree will grow to be eight or ten Feet high; but is very subject to produce crooked unsightly Branches; so that it can't be reduced to a regular Stem, which renders it unfit to plant singly in an open Situation: but amongst other Trees, where the Deformity of the Stem is hid, it looks very well. This is by some called Stags-horn-tree, from its having soft woolly Shoots, resembling the young Horns of a Stag.

The third Sort has not been many Years introduc'd into the *English* Gardens; yet is now become more common in the Nurseries than either

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of the other. It was brought first from *Pensylvania*; but since, the Seeds have been brought from *New-England*, and other Northern Parts of *America*. This produces much stronger Shoots, and grows more erect, than the others; but as the Spikes of Seeds are of an herbaceous Colour, they do not make so good an Appearance as those of the second Sort.

The fourth Sort hath smooth long-pointed Leaves, which are of a glaucous Colour; the Spikes of Flowers are of a bright red Colour; so that this Sort makes a very beautiful Appearance when in Flower; but is of humbler Growth than either of the former. This produces a great Number of Suckers from the Roots, and grows very irregular in its Branches. There is another Variety of this, which differs in the Spikes of Flowers, being cover'd over with a white Powder, as if frosted; but this is not a distinct Species.

The fifth Sort is also a Shrub of humble Growth, seldom rising more than four Feet high in *England*. This is by some call'd the *Lentiscus-leav'd Sumach*. The *Pinnæ* of these Leaves are join'd by a Border or Wing, which runs along the Mid-rib: the Flowers of this Sort are not very beautiful; but as the Leaves of the Shrub are of a singular Structure, they are admitted into the Gardens of the Curious for Variety-sake. This Sort is hardy enough to endure the Cold of our ordinary Winters very well in the open Air, if it is planted in a shelter'd Situation.

All the Sorts may be propagated by Seeds, which should be sown soon after they are ripe; and then the Plants will come up the following Spring: but if the Seeds are not sown till the Spring, it will be a

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Year before the Plants will appear. The best Method of raising these Plants from Seeds is, to sow them in Pots of light Earth, and place them under an Hot-bed-frame in the Winter, where they may be constantly expos'd to the open Air in mild Weather; but should be cover'd in hard Frost. And if the Pots are plung'd into some old Tanners Bark, which has no Heat, this will prevent the Earth from drying, as also keep out the Frost. When the Plants come up, they will require no other Care but to water them in dry Weather; and if, the following Winter, the Pots are plac'd in Shelter, it will secure the Plants from being injur'd by Frost; and in the Spring, before they begin to shoot, they should be transplanted into Nursery-beds, where they may grow a Year or two; by which time they will have obtained Strength enough to be planted where they are to remain.

The four first-mention'd Sorts propagate themselves so fast by Suckers, that their Seeds are seldom sown; but the fifth seldom produces any Suckers, which occasions its being scarce in the Gardens; for the Seeds do not ripen in England.

The African Sorts are all preserv'd in Pots or Tubs, and hous'd in Winter, being too tender to endure the Cold of this Climate in the open Air. These may be propagated by laying down their young Branches into fresh Earth; observing to water them duly in dry Weather, which will greatly forward their Rooting. In two Years they will be fit to transplant; when they may be taken from the old Plants, and each placed in a separate Pot fill'd with fresh light Earth. The best time for transplanting of these Plants is in April, observing to water and shade them un-

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til they have taken Root; after which they may be expos'd with Myrtles, Oleanders, and other hardy Exotics, during the Summer-season, and in Winter must be hous'd with them; being equally as hardy, and only require to be screened from severe Frost.

These Plants rarely produce Flowers in England; but as they retain their Leaves all the Winter, and may easily be reduced to a regular Head, they are preserv'd for the Diversity of their Leaves, which adds to the Variety of a Green-house.

RIBES, The Curran-tree.

The Characters are;

It hath no Prickles; the Leaves are large; the Flower consists only of five Leaves, which are placed in a circular Order, and expand in form of a Rose: the Ovary, which arises from the Centre of the Flower-cup, becomes a globular Fruit, which is produc'd in Bunches.

The Species are;

1. RIBES *vulgaris acidus ruber.* J. B. Common red Curran.

2. RIBES *major, fructu rubro.* H. Eyst. The large Dutch red Curran.

3. RIBES *vulgaris acidus albus baccas ferens.* J. B. Common white Curran.

4. RIBES *quæ grossularia hortensis, majore fructu albo.* H. R. Par. Large Dutch white Curran.

5. RIBES *major, fructu carneo.* The Champaign Curran, *vulgo.*

6. RIBES *Alpinus dulcis.* J. B. The Gooseberry-leav'd Curran.

7. RIBES *fructu parvo.* Merr. Pin. The small wild Curran.

8. RIBES *nigrum vulgo dictum, folio olente.* J. B. The black Curran.

9. RIBES *vulgaris, foliis ex luteo variegatis.* The yellow strip'd-leav'd Curran.

10. RIBES *vulgaris, foliis ex albo elegantior*

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eleganter variegatis. The common Curran, with Leaves beautifully variegated with Green and White.

11. *RIBES fructu albo, foliis ex albo variegatis.* The white Curran, with striped Leaves.

12. *RIBES Alpinus dulcis, foliis variegatis.* The striped Goosberry-leav'd Curran.

13. *RIBES fructu nigro, foliis variegatis.* The black Curran, with striped Leaves.

14. *RIBES Americanus, fructu nigro.* The American black Curran.

The five first-mention'd Sorts are preserv'd in all curious Gardens, for the sake of their Fruits: indeed, of late Years, the common red and white Currans have been neglected, since the *Dutch* red and white have become plenty in *England*; these producing much larger and fairer Fruit to the Sight than the common Sorts, though I think the common Sorts are much better flavour'd; so that they should not be intirely neglected by such as are curious in Fruits.

The sixth Sort is preserv'd as a Curiosity, by such as delight in Variety; but the Fruit is not valuable.

The seventh Sort is found wild in *England*. The Fruit of this Kind is small, and ill-tasted; which renders it unworthy of being cultivated in Gardens.

The eighth Sort is preserv'd in some old Gardens; but the Fruit having a disagreeable strong Taste, has occasion'd its being but little cultivated of late Years, unless for medicinal Use. There is a Rob made of this Fruit, which is in great Request for the Cure of sore Throats and Quinsies; from whence this Fruit has been called Squinancy-berries.

Those Sorts with variegated

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Leaves are preserv'd by such as are fond of strip'd Plants; but as their greatest Beauty is only in the Spring, before their Leaves grow large, after which they become more green, they are scarcely worth preserving in a Garden.

The fourteenth Sort was obtain'd by Mr. *Peter Collinson* from *America*, in whose fine Garden it has produc'd Fruit; and from thence hath been communicated to several other curious Gardens. The manner of this Plant's Flowering is very different from the other Sorts of Currans, for which Variety it may have a Place amongst other Shrubs; but the Fruit, being somewhat like our black Curran, is not much esteem'd.

All these Sorts may be easily propagated by planting their Cuttings any time from *September* to *March* (but the Autumn is the best), upon a Spot of fresh Earth, which in the Spring must be kept very clear from Weeds; and in very dry Weather, if they are water'd, it will greatly promote their Growth. These may remain two Years in this Nursery; during which time they must be pruned up for the Purposes design'd, *i. e.* either to clear Stems, if for Standards; or if for Walls, Pales, or Espaliers, they may be trained up flat.

Then they should be planted out where they are to remain; the best Season for which is soon after the Leaves begin to decay, that they may take Root before Winter; so that they may be in no Danger of suffering from Drought in the Spring.

These Plants are generally planted in Rows at about ten Feet asunder, and four Feet Distance in the Rows; but the best Method is to train them against low Espaliers, in which man-

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ner they will take up much less room in a Garden, and their Fruit will be much fairer.

The Distance they should be plac'd for an Espalier, ought not to be less than ten or twelve Feet, that their Branches may be trained horizontally; which is of great Importance to their Bearing.

Those that are planted against Pales or Walls, should also be allowed the same Distance; if they are planted against a South-east Wall or Pale, it will cause their Fruit to ripen at least a Fortnight or three Weeks sooner than those in the open Air; and those which are planted against a North Wall or Pale, will be proportionably later; so that by this Method the Fruit may be continued a long time in Perfection, especially if those against the North Pales are matted in the Heat of the Day.

These Plants produce their Fruit upon the former Year's Wood, and also upon small Snags which come out of the old Wood; so that, in pruning them, these Snags should be preserved, and the young Shoots shorten'd in proportion to their Strength. The only Method, very necessary to be observ'd in pruning of them, is, not to lay their Shoots too close, and never to prune their Snags to make them smooth: this, with a small Care in observing the manner of their Growth, will be sufficient to instruct any Person how to manage this Plant, so as to produce great Quantities of Fruit.

These Plants will thrive, and produce Fruit, in almost any Soil or Situation, and are often planted under the Shade of Trees; but the Fruit is always best when they are planted to the open Air, and upon a dry Soil.

RICINOIDES, Physic-nut, vulgar.

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The Characters are;

The Male Flowers consist of several Leaves, which are placed in a circular Order, and expand in form of a Rose: these are barren: and grow at remote Distances from the Female Flowers, upon the same Plant; in which are produc'd the Embryoes, which are wrapt up in the Flower-cup, and afterward become tricapsular Fruits, containing one oblong Seed in each Cell.

The Species are;

1. RICINOIDES *Americana, gossypii folio.* Tourn. American Physic-nut, with a Cotton-leaf.

2. RICINOIDES *arbor Americana, folio multifido.* Tourn. Tree American Physic-nut, with a multifid Leaf, commonly called in the *West-Indies*, French Physic-nut.

3. RICINOIDES *Americana, staphysagriae folio.* Tourn. American Physic-nut, with a Staves-acre-leaf, called in the *West-Indies*, Belly-ach-weed, and wild Cassada.

4. RICINOIDES *Americana, eleagni folio.* Plum. American Physic-nut, with a Wild-olive-leaf.

5. RICINOIDES *frutescens, althææ folio.* Plum. Cor. Shrubby Physic-nut, with a Marsh-mallow-leaf.

6. RICINOIDES *foliis populi hirsutis.* Plum. Cat. Physic-nut with hairy Poplar-leaves.

7. RICINOIDES *frutescens, linariæ foliis obtusis.* Plum. Cat. Shrubby Physic-nut, with blunt Toad-flax-leaves.

8. RICINOIDES *folio citrii, argenteo polline conperso.* Plum. Cat. Physic-nut, with a Citron-leaf, powder'd over with Silver.

9. RICINOIDES *verbasci folio.* Plum. Cat. Physic-nut with a Mullein-leaf.

10. RICINOIDES *castaneæ folio.* Plum. Cat. Physic-nut with a Chestnut-leaf.

11. RICINOIDES *herbaceum, foliis trifidis*

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trifidis vel quinquesidis & serratis. Houst. Herbaceous Physic-nut, with three or five-sawed Leaves.

12. *RICINOIDES folio subrotundo serrato, fructu parvo conglomerato.* Houst. Physic-nut with a roundish sawed Leaf, and small Fruit, growing in Clusters.

13. *RICINOIDES palustre, fructu hispido, foliis subrotundis, nervosis & asperis.* Houst. Marsh Physic-nut, with a prickly Fruit, and roundish ribbed Leaves, which are rough.

14. *RICINOIDES frutescens, lauri folio, calyce amplissimo viridi.* Houst. Shrubby Physic-nut, with a Bay-leaf, and a large green Flower-cup.

15. *RICINOIDES, ex qua paratur Tournesol Gallorum.* Inst. R. H. App. Physic-nut, from which the *Tournesol* of the *French* is made.

These Plants are very common in the warm Parts of *America*. The first Sort is planted in Hedges, in most Parts of *Jamaica* and *Barbados*; and is propagated by Slips or Cuttings, which will take Root very freely, and make a good Fence in a short time, being very quick of Growth. This rises to be twenty Feet high, and produces a great Quantity of Nuts, which are given from three to seven, for a Vomit; but if the thin Film be taken off, they may be eaten in Quantities without any ill Effect. There is an Oil drawn from these Seeds, which is used for burning in Lamps.

The second Sort is cultivated in Gardens in *Jamaica* and *Barbados*, for the Beauty of its Flowers, which are of a fine scarlet Colour, and produced in large Bunches on divers Parts of the Plant. The Nuts of this Kind are larger than the other, but have much the same Quality. This is not a Native in any of the *English* Settlements in the *West-Indies*; but was brought thither either from the *Spa-*

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nish or *French* Settlements, from whence it had the Names of *French* and *Spanish* Physic-nut.

The third Sort is very common in the *Savannas* in *Jamaica* and *Barbados*: the Seed of this Kind is the common Physic among the poorer Sort, for the dry Belly-ach.

The fourth Sort grows plentifully upon the Sea-coast in divers Parts of the *West-Indies*, and is sometimes brought into *England* as a Curiosity, where, in some very good Gardens, it is preserved with the former Sorts.

The seven next-mention'd Sorts were discover'd by Father *Plumier* in *America*: the first and second Sorts have been found growing plentifully in the Island of *Jamaica*: the third, fifth, sixth, seventh, eighth, ninth, and tenth Sorts were found in plenty about *La Vera Cruz*, by the late Dr. *William Housloun*, from whence he sent their Seeds to *England*: the eleventh Sort was also discover'd by the same Gentleman at *Jamaica*. All these Sorts are very tender Plants, being Natives of very warm Countries, and require to be tenderly treated, otherwise they will not grow in this Country. The second, seventh, eighth, ninth, and tenth Sorts are annual; so their Seeds must be sown on an Hot-bed early in the Spring; and when the Plants are come up, they should be transplanted each into a separate small Pot filled with light rich Earth, and then plunged into a moderate Hot-bed of Tanners Bark, observing to shade them, until they have taken Root; and then they should have fresh Air admitted to them by raising the Glasses every Day in warm Weather; and they must be frequently watered. In about a Month's time, the Plants will have filled these Pots with their Roots; when they should

be shaken out, and put into larger Pots filled with rich Earth, and plunged again into the Hot-bed, provided there is room for the Plants to grow in Height, without being pressed by the Glasses; in which Case it will be proper to put them into the Bark-bed in the Stove; for they are too tender to thrive in the open Air in this Country, in the warmest Season of the Year. In *July* these Plants will flower, and their Seeds will ripen in *August* and *September*; soon after which time the Plants will decay.

The seven first mention'd, as also the fourteenth Sort, are perennial Plants, which may be preserved in a warm Stove several Years; but the first is by much the largest-growing Plant of all the Sorts. This will grow to the Height of twelve or fourteen Feet; but rarely produces Flowers in *England*. The second Sort grows about eight or nine Feet, and produces its beautiful scarlet Flowers every Year; and sometimes will ripen its Fruit with us.

The third Sort seldom rises more than three Feet high; but divides into many Branches, and frequently produces its Flowers and Seeds in *England*.

The fourth is a slender-stemm'd Plant, rising four or five Feet high, having silvery Leaves; for which it is chiefly valued. This grows in the *Bahama Islands*, and in most of the warm Parts of *America*; and is much more nice in its Culture than either of the other Sorts.

The fifth, sixth, seventh, and fourteenth Sorts are shrubby Plants, which grow five or six Feet high with us; but in their native Countries they are much larger, and branch out on every Side. As these Plants produce Flowers of little Beauty, they are seldom cultivated

but in Botanic Gardens for the sake of Variety.

These Plants must be placed in a Bark-stove (with other Plants which are the Produce of the same Countries); during which Season they should be often refreshed with Water, and the Stove should be kept up to *Anana's* Heat (as mark'd on the Botanical Thermometers); in this they will continue flourishing all the Winter, and early the next Spring will produce Flowers, which will be succeeded by Fruit.

The eighth, ninth, tenth, eleventh, twelfth, and thirteenth Sorts are annual Plants, which are also Natives of the warm Parts of *America*; so these must be sown on a good Hot-bed in the Spring; and if the Plants are brought forward early, and placed in the Bark-stove, they will perfect their Seeds in *England*. But these should have a large Share of Air in warm Weather, especially at the time when they are in Flower; for as the Male Flowers grow at remote Distances from the Female, on the same Plants, there is a Necessity for the Admission of Air to assist the wafting of the *Farina* for the Impregnation of the Seeds, otherwise they will be barren; which is often the Occasion of the Loss of these Species in *Europe*.

The twelfth Sort is an annual Plant, and is found wild in the South of *France*, *Spain*, and *Italy*, from which the Tournesol is made, that is us'd for colouring Wine and Jellies. This is made of the Juice which is lodg'd between the outer Cover and the Seeds; and, if rubbed on Cloth, at first appears of a lively green Colour, but soon changeth to a bluish-purple Colour: if these Cloths are put into Water, and afterwards wrung, they will colour the Water of a Claret-colour. The
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Rags, thus dy'd, are brought to England, and sold in the Druggists Shops, by the Name of Tournelol.

This Sort may be propagated by Seeds, which should be sown in the Autumn, soon after they are ripe, on a warm Border of fresh light Earth; and if any of the Plants come up before Winter (which sometimes happens), they should be shelter'd in hard Frost, otherwise they will not live through the Winter. But the Seeds generally remain in the Ground until the Spring, when the Plants will appear; at which time they should be cleaned from Weeds; and where the Plants are too close, they should be thin'd, so as to leave them about six Inches asunder; and in very dry Weather, if they are now-and-then refreshed with Water, it will promote their Growth. This is all the Culture they require, except the keeping them constantly clear from Weeds; for the Plants do not thrive well, if they are transplanted; so they should be sown where they are designed to remain. In July the Plants will flower, and their Seeds will ripen in August or September, and decay soon after.

RICINUS, Palma Christi, *vulgo*.

The Characters are;

The Flowers are *apetalous* (i. e. have no Leaves), consisting of many Stamina, which arise in the Centre of the Flower-cup: these are barren; for the Embryoes are produced at remote Distances, upon the same Plant; which afterward become triangular Fruits, having three Cells; in each of which is contained one oblong Seed, which has an hard Shell.

The Species are;

1. *RICINUS vulgaris*. C. B. P. The common Palma Christi, commonly known in the West-Indies by the Name of Oil-nut, or Agnus Castus.

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2. *RICINUS vulgaris minor*. C. B. P. *Caule rutilante*. The lesser Palma Christi, with redish Stalks, commonly call'd in Barbados, red Oil-seed.

3. *RICINUS vulgaris minor*. C. B. P. *Caule virescente*. Lesser Palma Christi, with green Stalks, commonly call'd white Oil-seeds in Barbados.

4. *RICINUS Americanus major*, *caule virescente*. H. R. P. The greater Palma Christi, with green Stalks.

5. *RICINUS Africanus maximus caule geniculato rutilante*. H. R. P. The greatest African Palma Christi, with redish jointed Stalks.

6. *RICINUS Indicus, fructu rugoso non echinato*. Indian Oil-seed, with a rough Fruit not echinated.

7. *RICINUS Americanus, fructu racemoso hispido*. John. Dend. American Oil-seed, with prickly Fruit growing in a Cluster.

8. *RICINUS Americanus, fructu racemoso glabro majore*. Millar. American Oil-seed, with larger smooth Fruit growing in a Cluster.

9. *RICINUS Americanus minor, fructu racemoso glabro*. Millar. Smaller American Oil-seed, with smooth Fruit growing in Clusters.

10. *RICINUS Zeylanicus, foliis profundius laciniatis*. Inst. R. H. Oil-seed of Zeylon, with Leaves deeply cut in.

11. *RICINUS humilis, foliis subrotundis serratis, & subtus argenteis, flore fructuque conglomeratis*. Houst. Dwarf Oil-seed, with roundish sawed Leaves, which are silvery underneath, and the Flowers and Fruit growing in Bunches.

The five Sorts first-mention'd are very common in divers Parts of Africa and America; and one of them is also found in the warm Parts of Europe; but in England they are preserv'd with great Care in several curious Gardens.

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The first Sort has been a long time in this Country, but was formerly treated as an annual Plant; whereas, if it be preserv'd in a good Greenhouse, it will abide two or three Years, and become a large Plant.

The second and third Sorts grow promiscuously all over *America*, where their Seeds are gather'd to draw an Oil from them, for the Use of Lamps; these Seeds are frequently sent into *England*, intermixed with each other.

The fourth Sort is also very common in *America*, growing promiscuously with the common Sort; the Seeds of both being gather'd indifferently to draw an Oil from them.

The fifth Sort, though mention'd to be a Native of *Africa*, yet is also very common in divers Parts of *America*, from whence I have several times receiv'd the Seeds. This produces very large Leaves and Seeds, and will grow to a large Size, if planted in a rich Soil. I have measur'd one of the Leaves of this Plant (which was growing near *Chelsea*), which was upward of two Feet Diameter; and the Stem was as large as a middle-siz'd Broom-staff, tho' but of one Summer's Growth.

The Seeds of the sixth Sort were brought from the *East-Indies*, which came up and flourish'd in the Physic-garden at *Chelsea*. This Sort grows about the same Height as the common Kind; but the Leaves are not so deeply divided. The Coverings of the Seeds are not prickly, as in most of the other Sorts (somewhat resembling the outer Cover of the Chestnut); but are rough, and full of Protuberances.

The Seeds of the seventh and eighth Sorts were sent from *Jamaica* by Mr. Robert Millar, who gather'd them on the North Side of

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that Island. These Plants grow, in their native Country, to be eighteen or twenty Feet high, and continue two or three Years. They are nearly alike in their outward Appearance; but differ in the Covering of their Seeds, the seventh having prickly Covers, and the eighth being smooth.

The ninth Sort is a low Plant, seldom rising above three Feet high, and differs from the common small Sort, in having smooth Covers to the Seeds: this is less common, and hath not been remarked by any Botanical Writer.

The tenth Sort is a Native of *Ceylon*, from whence the Seeds were brought to *Holland*; and hath been cultivated in many curious Gardens. The Leaves of this Kind are very deeply jagged, in which it chiefly differs from the common Sort.

The eleventh Sort was discover'd by the late Dr. *William Housloun* at *Campechy*, from whence he sent the Seeds to *England*. This is a very low Plant, seldom rising above nine Inches or a Foot high, and perishes soon after the Seeds are perfected.

These Plants may be propagated by sowing their Seeds upon an Hot-bed; and when they are come up, they should be each planted into a separate Pot fill'd with fresh light Earth, and plunged into a fresh Hot-bed, observing to water and shade them until they have taken Root; after which they must have a great Share of free Air, when the Season is mild, otherwise they will draw up tall, and be very weak; and as these Plants grow very fast, their Roots will in a short time fill the Pots: therefore they should be shifted into larger Pots filled with the like fresh Earth; and toward the Latter end of *May*, when the Season is warm, they

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they may be harden'd to endure the open Air by degrees; and then, if they are planted out into a very rich Border, and in dry Weather duly water'd, they will grow to a very large Size, particularly the first Sort, which I have seen upward of ten Feet high in one Season; and these Plants have produc'd a great Quantity of Flowers and Seeds; but if you intend to preserve them through the Winter, they must never be placed in the full Ground, because after their Roots have been widely extended, there will be no transplanting them with Safety; therefore the best way is to shift them into larger Pots from time to time, as their Roots shall require, placing them in the open Air during the Summer-season, in some warm Situation, where they may remain till *October*, when they must be remov'd into the House with other Exotic Plants, observing duly to water them in Winter when they require it, and let them have free Air in mild Weather; for they only require to be protected from Frost, and cold Winds, so that they will endure the Winter in a warm Green-house without any Addition of artificial Warmth.

The first four Sorts will perfect their Seeds the first Season in this Climate, provided they are sown early in the Spring; but the fifth Sort will rarely produce any till the second Year; so that there is a Necessity of preserving this through the Winter, otherwise it cannot be maintain'd in *England*.

These Plants deserve a Place in every curious Garden for the singular Beauty of their Leaves (notwithstanding their Flowers are not very valuable), especially those Sorts which may be propagated every Year from Seeds, because those Persons

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who have no Green-house to place them into in Winter, may cultivate them as other annual Plants; amongst which these, being placed either in Pots or Borders, afford an agreeable Variety: but it must be observ'd, as these are large-growing Plants, never to place them too near other Plants of less Growth, because these will overbear and destroy them; and those which are planted in Pots, should be allow'd room for their Roots to expand, and must be frequently water'd, otherwise they will not grow very large.

RICOPHORA, Yams.

The *Characters* of this Genus of Plants are not sufficiently described to ascertain what Class it belongs to; nor do these Plants produce Flowers in any of the *European* Gardens; so that, unless the Flowers are examined by a skilful Person in their native Places of Growth, it will not be known where to place it.

Dr. *Van Royen*, Professor of Botany at *Leyden*, has ranged these Plants under the Genus of *Dioscorea*; but from the imperfect Remains of some Flowers brought from *America*, it appeared to me this should not be placed there.

The *Species* are; *bame*

1. **RICOPHORA** *Indica*, seu *In rubra*, caule alato scammonii, foliis nervosis conjugatis. *Par. Bat. Prod.* The red-stalk'd Yam.

2. **RICOPHORA** *magna* *Virginiana*, bryoniæ nigrae modo volubilis, singulari folio nervoso flexili, caule tetragono, ad angulos elato. *Pluk. Almag.* The great *Virginian* Yam, with a square Stalk climbing like Black-bryony, and a single-ribb'd Leaf.

There are some other Varieties of this Plant in the warm Parts of the *East* and *West-Indies*; but these two are the most commonly cultivated for Use. These Plants are
wild

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wild in the Woods in *Zeylon*, and are reckoned as good as those which are cultivated ; but as they are difficult to dig up, and grow scattering at a great Distance from each other, so the Inhabitants of that Island plant them in open Fields for Food. These are also cultivated by the Inhabitants of *Jamaica*, and the other Islands in *America*; and are esteemed a very wholesome Food. The manner of propagating them is the same as for Potatoes ; which is, to divide the Roots into several Pieces, preserving a Bud or Eye to each, and planting them in Drills, at about a Foot and an half Distance in the Rows, and three Feet asunder Row from Row. These Drills should be made a Foot deep ; and, after the Pieces of Roots are laid therein, must be covered over with the Earth which came out of the Drills. After this they require no farther Care but to keep the Ground clear from Weeds, until the Shoots are grown strong, when they will over-top the Weeds, and prevent their growing. In about ten Months after the planting, the Roots will be fully grown for Use ; when they will, some of them, weigh five or six Pounds *per* Root or more : when they are taken out of the Ground, they must be laid up in dry Sand to preserve them for Use ; but the Sand must be kept very dry, otherwise the Roots will grow, and oftentimes they will rot with much Moisture. With these Roots the Planters feed their Negroes instead of Bread ; and they grind the Roots to a Powder, and make Puddens of it, in the same manner as Wheat-flour is used in *England* : but the Roots must be well soaked in Water before they are used, to draw out the sharp biting Taste, which they have when taken out of the Ground.

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These Plants are preserved in some curious Gardens in *Europe* for Variety ; but as there is little Beauty in them, they are hardly worthy of a Place ; for they must be kept in a warm Stove, and plunged into the Tanners Bark, otherwise they will not thrive in this Country. The Shoots of these Plants will rise to the Height of ten or twelve Feet, and twine about the Plants which are near them ; so that where these are preserved, they should be placed near a Trelace on the Back-side of the Bark-bed ; and as the Shoots are produced, they should be trained up to the Poles of the Trelace to support them, that they may not ramble over the Plants, and destroy them. The Shoots of these die to the Root in Winter ; after which time they should not have much Water given to them, lest it should rot them ; but, during the Summer-season, they must be plentifully watered in hot Weather. These Roots must be taken up in *March*, before they begin to shoot, and new-potted ; and at the same time, it will be proper to cut off the old decayed Parts of the Roots, preserving only the sound, and such as have good Buds or Eyes for planting : for if the whole Roots are planted, as they were taken out of the Ground, they are very subject to rot ; so that it is much better to cut the Roots into several Parts, and let these lie a few Days to heal their Wounds, before they are planted. These should be plunged into an Hot-bed, and must have very little Moisture until they shoot ; but afterward will require it more plentifully.

RIVINIA.

The Characters are ;

The Flower is apetalous : the Em-
palement consists of four Leaves,
which are placed circularly, and ex-
pand in form of a Rose : the Pointal

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is situated in the Centre, attended by six Stamina, which are extended beyond the Empalement: the Pointal afterward becomes a soft roundish Berry, full of Juice, in which is included a single Seed.

The Title of this Genus was given to it by Father Plumier, who discover'd the Plants in America, in Honour to Augustus Quirinus Rivinus, a famous Botanist of Leipsic, who publish'd two Volumes of Plants in Folio, in which the Figures of the Plants are engraven on Copper-plates. These were publish'd in 1690.

Dr. Linnæus has applied the Title of this Genus to the Solanoides of Tournefort, which is by Dr. Boerhaave join'd to the Phytolacca; so has been of late Years chiefly known by the Name of *Phytolacca fructu minori*: but this is totally different from Plumier's Plants; and the Doctor has charg'd Father Plumier with an Error in the engraving of the Characters of this Genus with six Stamina, instead of four: whereas Plumier's Plants have six Stamina; but the Plant which the Doctor has applied to this Title has but four. Therefore the Mistake is the Doctor's, and not Father Plumier's.

The Species are;

1. RIVINIA *humilis racemosa, baccis puniceis*. Plum. Nov. Gen. Dwarf branching Rivinia, with scarlet Berries, sometimes call'd Curran-tree.

2. RIVINIA *scandens racemosa, amplis solani foliis, baccis violaceis*. Plum. Nov. Gen. Climbing branching Rivinia, with ample Night-shade-leaves, and Violet-berries.

The first Sort grows about four or five Feet high, having very woody Stems and Branches; the Leaves are shaped somewhat like those of the Pear-tree, but are more pointed: the Flowers are produc'd in a long

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Bunch, like those of the Curran-tree, toward the End of the Branches. These are succeeded by Berries about the Size of Currans, of a scarlet Colour.

The other Sort hath climbing woody Branches, which twist themselves about those Trees which grow near it; and rises to the Height of twenty Feet; the Leaves of this Sort are much larger than those of the other; the Flowers grow in closer Clusters; and the Berries are of a Violet-colour when ripe. This Sort was found growing in Jamaica, by the late Dr. William Houstoun, who also found the first Sort at the Havannah.

Both these Plants are tender; so cannot be preserved through the Winter in England, unless they are placed in a warm Stove. They may be propagated by Seeds; but these commonly remain a whole Year in the Ground: so that they should be sown in Pots, which may be plung'd into the Tan-bed, where they must be kept warm in Winter, and in the following Spring should be plung'd into a fresh Hot-bed of Tan, to bring up the Plants: and when they are fit to remove, they should be each planted into a separate small Pot fill'd with fresh light Earth, and plung'd into the Tan-bed; and then the Plants should be treated in the same manner as hath been directed for other tender Plants from the same Countries.

I received the Berries of the first Sort from Antigua, by the Name of Currans.

ROBINIA, False Acacia.

The Characters are;

The Empalement of the Flower is of one Leaf, and divided into four Parts, the three Under-segments being narrow, but the upper one is broad: the Flower is of the pea-bloom Kind:

Kind: the Standard is large, roundish, and spreads open: the two Wings are oval and obtuse: the Keel is roundish, compress'd, obtuse, and is extended the Length of the Wings: in the Centre of the Keel is situated the Pointal, attended by ten Stamina, nine of them being joined together, and the other standing single: these are inclosed by the Keel: the Pointal afterward becomes an oblong compress'd Pod, inclosing kidney-shap'd Seeds.

The Species are ;

1. *ROBINIA pedunculis racemosis. foliis pinnatis. Hort. Upsal.* Common Virginia Acacia, with smooth Pods.

2. *ROBINIA foliis pinnatis, leguminibus echinatis. Virginia Acacia,* with short prickly Pods.

3. *ROBINIA pedunculis simplicissimis, foliis pinnatis. Hort. Upsal.* The Caragana.

4. *ROBINIA pedunculis simplicissimis, foliis quaternatis petiolatis. Hort. Upsal.* False Acacia, with a single Footstalk, having four Lobes.

5. *ROBINIA pedunculis simplicissimis, pinnis subrotundis, leguminibus alatis.* False Acacia, with single Footstalks, round Lobes, and wing'd Pods ; commonly call'd Dog-wood in the *West Indies*.

The first Sort has been long an Inhabitant of many *English* Gardens, where it was commonly known by the simple Title of Acacia : but as this is of a very different Genus from the true Acacia, Dr. *Tournefort* has given the Title of *Pseudoacacia* to this Genus of Plants: but Dr. *Linnaeus* has rejected this Name, as it is a Compound ; and has call'd it *Robinia*, in Honour to Monsieur *Robine*, who introduced this Tree into the Gardens of *France* from *North-America*.

The second Sort is less common than the first. There was a large

Tree of this kind, some Years ago, growing in the Bishop of London's Garden at *Fulham*, which produced plenty of Seeds. The Pods of this Sort are much shorter, and closely beset with short Prickles ; but in other respects it agrees with the first Sort. There is also another Variety of this Tree, which has rose-colour'd Flowers ; but this is not common in *England*, nor do I believe it is plenty in *America* ; though I have been inform'd, that in some of the Woods in *New-England*, they are in as great Plenty as the common Sort ; which if true, in time this Sort may become common in *England*.

The third Sort is a Native of *Siberia*, from whence the Seeds have been brought, and distributed to many Gardens in *England* and *Holland*. This Sort grows to the Height of twenty or thirty Feet in its native Country, and produces long Clusters of sweet yellow Flowers : but in *England* there are few of these Plants which thrive well ; for they generally begin to shoot with the first warm Weather in *February* ; and if Frost happens after (which is generally the Case in this Country), the Shoots are kill'd ; and this stints the Plants so much, as that they do not recover it the following Summer. This is propagated by Seeds, which should be sown on a Bed of light Earth, in the Spring of the Year, covering them about half an Inch deep with the same light Earth. The Plants will come up in about five or six Weeks, and will require no other Care but to keep them clean from Weeds ; and in the Autumn they must be transplanted where they are design'd to remain, because they do not bear transplanting well. These Plants should have a cool Situation, and a moist Soil, in which I find they thrive better

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better than when they have a warm Situation. Where these Plants have succeeded best, they have produc'd Flowers, and perfected their Seeds, the fourth Year from Seeds: but in other Places I have known the Plants stand three or four Years after their Removal, without making the least Progress.

The fourth Sort is also a Native of *Siberia*: this grows to be a Shrub of about five or six Feet high, bearing Clusters of yellow Flowers, which come out early in the Spring. This Sort thrives better in *England* than the former; but they both do best in a cold Situation, and a moist Soil. The first Sort is generally propagated in the *English* Nurseries, by Suckers taken from the Roots of the old Trees: but these are not so valuable as those which are raised from Seeds; because they do not make near so great Progress in their Growth, and are very subject to send forth many Suckers from their Roots, whereby the Ground will be fill'd with them, to a great Distance; and these Suckers will draw away the Nourishment from the old Plants, whereby their Growth will be greatly retarded.

If this is propagated by Seeds, they should be sown on a Bed of light Earth, about the Latter-end of *March*, or the Beginning of *April*. If the Bed is well exposed to the Sun, the Plants will appear in about five or six Weeks, and will require no farther Care but to keep them clear from Weeds. In this Bed the Plants may remain till the following Spring, when they should be transplanted into a Nursery about the Latter-end of *March*, placing them in Rows at three Feet Distance Row from Row, and a Foot and an half asunder in the Rows. In this Nursery they may

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remain two Years, by which time they will be fit to transplant where they are design'd to grow: for as these Trees send forth long tough Roots, so, if they stand long unremov'd, the Roots will extend themselves to a great Distance; therefore they must be cut off when the Plants are transplanted, which sometimes occasions their miscarrying.

These Trees will grow well upon almost every Soil, but best in a light sandy Ground, in which they will shoot six or eight Feet in one Year; and while the Trees are young, they make an agreeable Appearance, being well furnish'd with Leaves; but when they are old, the Branches being frequently broken by Winds, render them unsightly; especially if they stand in an exposed Place. The Leaves of these Trees come out the Beginning of *May*, and they flower in *June*, and frequently ripen Seeds in *England*.

These Trees were formerly in great Request in *England*, and were frequently planted in Avenues, and for shady Walks; but their Branches being frequently broken, or split down by the Wind in Summer, when they are cloath'd with Leaves, render these Trees improper for this Purpose; and their Leaves coming out late in the Spring, and falling off early in the Autumn, occasion'd their being neglected for many Years: but of late they have been much in Request again, so that the Nurseries have been clear'd of these Trees; though in a few Years they will be as little inquired after as heretofore, when those which have been lately planted begin to have their ragged Appearance.

The Flowers of this Tree are produced in long pendulous Bunches, and, when they are in plenty, make a fine Appearance, being of an elegant

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gant White, and they have an agreeable Odour; but they seldom last longer than a Week in Beauty.

The fifth Sort is a Native of the warmest Parts of *America*, where it grows to the Height of thirty Feet, having a large Trunk: the Branches are produced irregularly on every Side: these are clothed with winged Leaves, which are generally composed of seven large roundish Lobes, each having a short Footstalk. The Flowers are produc'd on the Branches before the Leaves put out: for in their native Soil these Trees cast their Leaves in the great Droughts; whereas those Plants which are preserved in *England*, retain their Leaves throughout the Year.

This is a tender Plant; so will not live through the Winter in *England*, unless it is placed in a warm Stove. It is propagated by Seeds, which should be sown in the Spring upon an Hot-bed; and, when the Plants come up, they must be treated in the same manner as hath been directed for other tender Plants, and should be constantly kept in the Tan-bed in the warm Stove. There are some of these Plants in *England* ten Feet high; but they have not produc'd Flowers. This is call'd Dogwood in *America*.

RONDELETIA.

The Characters are;

It hath a salver-shap'd Flower, consisting of one Leaf, which is tubulous, and rests on the Empalement; which Empalement afterward becomes a roundish coronated Fruit, divided into two Cells, containing many small Seeds.

We know but one Species of this Plant; viz.

RONDELETIA arborescens, tini facie. Plum. Nov. Gen. Tree-like Rondeletia, with the Face of *Laurus Tinus*.

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This Plant was discover'd by Father *Plumier* in *America*, who gave it this Name in Honour to *Gulielmus Rondeletius*, a famous Physician of *Montpelier*.

The Seeds of this Plant were sent to *England* by Mr. *Robert Millar*, Surgeon, who collected them on the North Side of the Island of *Jamaica*, where the Trees grow plentifully, as also in several Parts of the *Spanish West-Indies*.

This Plant, being very tender, cannot be preserv'd in *England*, unless it is kept in a warm Stove. It is propagated by Seeds, which should be sown on an Hot-bed early in the Spring; and when the Plants are come up, they must be transplanted into separate small Pots, and plunged into a moderate Hot-bed of *Tanners Bark*, where they must be treated in the same manner as hath been directed for the *Pereeskia*; and in Winter must be plac'd in the Tan-bed in the Stove, where these Plants will thrive, and in two or three Years will flower; when they will make an agreeable Variety amongst other tender Exotic Plants.

ROSA, The Rose-tree.

The Characters are;

The Flower is composed of several Leaves, which are placed circularly, and expand in a beautiful Order; whose leafy Flower-cup afterward becomes a roundish or oblong fleshy Fruit, inclosing several angular hairy Seeds: to which may be added, It is a weak pithy Shrub, for the most part beset with Prickles, and hath pinnated Leaves.

The Species are;

1. *ROSA sylvestris inodora, seu canina. Park. Theat.* The Wild-briar, Dog-rose, or Hep-tree.

2. *ROSA sylvestris, fructu majore hispido. Raii Syn.* Wild-briar, or Dog-

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Dog-rose, with large prickly Heps.

3. *ROSA sylvestris pomifera major nostras.* Raii Syn. The greater English apple-bearing Rose.

4. *ROSA pumila spinosissima, foliis pimpinellæ glabris, flore albo.* J. B. The Dwarf wild-burnet-leav'd Rose.

5. *ROSA pumila spinosissima, foliis pimpinellæ glabris, ex luteo & viridi eleganter variegatis.* The Dwarf wild-burnet-leav'd Rose, with variegated Leaves.

6. *ROSA pimpinella minor Scotica, floribus ex albo & carneo eleganter variegatis.* Pluk. Alm. The striped Scotch Rose.

7. *ROSA sylvestris, foliis odoratis.* C. B. P. The Sweet-briar, or Eg-lantine.

8. *ROSA sylvestris odora sive Eg-lanteria, flore duplici.* Park. Parad. Sweet-briar with a double Flower.

9. *ROSA sylvestris, foliis odoratis, flore pleno.* The Sweet-briar with a very double Flower.

10. *ROSA sylvestris, foliis odoratis, sempervirens, flore pleno incarnato.* Ever-green Sweet briar, with a double pale Flower.

11. *ROSA rubra multiplex.* C. B. P. The double red Rose.

12. *ROSA Damascena.* Park. Parad. The Damask Rose.

13. *ROSA Provincialis, sive Hollandica, Damascena.* Park. Parad. The Damask Provence Rose.

14. *ROSA Provincialis major, flore pleno ruberrimo.* Boerb. Ind. Alt. The red Provence Rose.

15. *ROSA centifolia Batavica.* Clus. H. The Dutch hundred-leav'd Rose.

16. *ROSA Provincialis spinosissima, pedunculo muscoso.* Boerb. Ind. Alt. The Moss Provence Rose.

17. *ROSA Provincialis rubra.* Park.

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Parad. The common Provence Rose.

18. *ROSA holosericea simplex.* Park. Parad. The single Velvet Rose.

19. *ROSA holosericea multiplex.* Park. Parad. The double Velvet Rose.

20. *ROSA odore cinnamomi, flore pleno.* C. B. P. The double Cinnamon Rose.

21. *ROSA odore cinnamomi, simplex.* C. B. P. The single Cinnamon Rose.

22. *ROSA lutea simplex.* C. B. P. The single yellow Rose.

23. *ROSA lutea multiplex.* C. B. P. The double yellow Rose.

24. *ROSA sylvestris Austriaca, flore phæniceo.* Park. Theat. The Austrian Rose.

25. *ROSA sylvestris Austriaca, flore totum luteum.* The yellow Austrian Rose.

26. *ROSA uno ramo luteos, cæteris puniceos flores gerens simplices.* Boerb. Ind. Alt. The Austrian Rose, with yellow Flowers upon one Branch, and purple Flowers on the other.

27. *ROSA alba vulgaris major.* C. B. P. The common white Rose.

28. *ROSA alba minor.* C. B. P. The lesser white Rose.

29. *ROSA candida semiplena.* J. B. The semidouble white Rose.

30. *ROSA incarnata.* Park. Parad. The Blush Rose, or Maiden-blush.

31. *ROSA Prænestina variegata plena.* Hort. Eyf. The York and Lancaster Rose.

32. *ROSA rubro & albo variegata, Rosa mundi vulgo dicta.* Raii Hist. The Rose of the World, or Rosa mundi.

33. *ROSA Francofurtensis.* Park. Parad. The Frankfort Rose.

34. *ROSA sempervirens.* Park. Parad. The ever-green Rose.

35. *ROSA omnium calendarum.* H. R. Par. The monthly Rose.

36. *ROSA*

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36. *ROSA omnium calendarum, flore variegato.* The striped monthly Rose.

37. *ROSA sine spinis, flore minore.* C. B. P. The Rose without Thorns.

38. *ROSA sine spinis, flore majore ruberrimo.* The royal Virgin Rose.

39. *ROSA sylvestris Virginienfis.* Raii Hist. The wild Virginian Rose.

40. *ROSA sylvestris Virginiana, flore majore pallido.* The wild Virginian Rose, with a larger pale Flower.

41. *ROSA Americana moschata, flore minore.* The American Musk Rose, with a smaller Flower.

42. *ROSA Americana odoratissima serotina, flore pallido pleno.* The most sweet-scented American late-flowering Rose, with a double Flower.

43. *ROSA moschata, simplici flore.* C. B. P. The single Musk Rose.

44. *ROSA moschata, flore pleno.* C. B. P. The double Musk Rose.

45. *ROSA moschata sempervirens.* C. B. P. The ever-green Musk Rose.

46. *ROSA Belgica, five vitrea, flore rubro, Rea. Flor.* The red Belgic Rose.

47. *ROSA Belgica, five vitrea, flore rubicante. Rea. Flor.* The Blush Belgic Rose.

48. *ROSA marmorea. Rea. Flor.* The marbled Rose.

49. *ROSA Provincialis, flore simplici.* The single Provence Rose.

50. *ROSA Damascena, flore simplici.* The single Damask Rose.

51. *ROSA pimpinella minor Scotica, flore livide rubente.* The Dwarf Scotch Rose, with a bluish-red Flower.

The first Sort of Rose grows wild in the Hedges in most Parts of *England*: the Fruit of this Tree is made into a Conserve for medicinal Use; but this is seldom cultivated in Gardens.

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The second, third, and fourth Sorts also grow wild in divers Parts of *England*; and are rarely preserved in Gardens, unless for Variety-sake.

The third Sort is a very tall-growing Shrub, having strong upright Shoots; the Flowers are single, and of a bright-red Colour; the Fruit is very large, and is by some Persons made into a Sweet-meat; so the Plant is cultivated in many Gardens on that account.

The fourth Sort is of humble Growth, seldom rising much above three Feet high; the Leaves are like those of Burnet; the Flowers are white, single, and have a musky Scent.

The fifth Sort is a Variety of the fourth, and is preserved by some for the Beauty of its striped Leaves.

The sixth Sort is found wild in *Scotland*, and has been by many supposed to be the same as the fourth Sort, but only differing therefrom in having variegated Flowers; which is a great Mistake; for I have observ'd, where the two Sorts were cultivated on the same Soil for many Years, and yet retain'd a considerable Difference in the Size of the Plants, the *Scotch* Sort being not half so large as the other; yet the Flowers were much larger, the Leaves were less, and the Branches much weaker, than those of the fourth Sort.

The last Sort here mention'd was rais'd from the Seeds of the *Scotch* Rose; and altho' the Flowers were plain-colour'd, yet the whole Appearance of the Plant continues the same as the original Kind; which is a plain Proof of its being different from the fourth Sort.

The Sweet-briar, altho' wild in some Parts of *England*, yet is preserv'd in most curious Gardens, for the extreme Sweetness of its Leaves, which

which perfumes the circumambient Air in the Spring of the Year, especially after a Shower of Rain. The Flowers of this Sort, being single, are not valu'd; but the Branches of the Shrubs are cut to intermix with Flowers to place in Basons to adorn Halls, Parlours, &c. in the Spring of the Year, the Scent of this Plant being agreeable to most Persons.

The double-flower'd Sweet-briar is preserv'd on the account of its beautiful Flowers, as well as for the Sweetness of its green Leaves.

The other Sort, with very double Flowers, has been lately obtained from Seeds; and as the Flowers of this Kind are much more double than those of the other, it has obtained the Preference with most People: the Flowers of this Sort have little Scent.

The ever-green Sweet-briar, with a double pale Flower, has been very lately obtained from Seeds: the Leaves of this Sort commonly continue green till the Spring, which has occasion'd many Persons to covet the Plants; but this is what has been obtained from Seeds several times, tho' not with a double Flower.

All the other Sorts of Roses are originally of foreign Growth; but are hardy enough to endure the Cold of our Climate in the open Air, and produce the most beautiful and fragrant Flowers of any kind of Shrubs yet known: this, together with their long Continuance in Flower, has justly render'd them the most valuable of all the Sorts of flowering Shrubs; beside, the great Variety of different Sorts of Roses make a Collection of Flowers, either for Basons, or in the Garden, without any other additional Mixture; and their Scent, being the most inoffensive Sweet, is generally esteem'd by most Persons.

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But in order to continue these Beauties longer than they are naturally disposed to last, it is proper to plant some of the monthly Roses near a warm Wall, which will occasion their Budding at least three Weeks or a Month before those in the open Air: and if you give them the Help of a Glass before them, it will bring their Flowers much forwarder, especially where the Dung is placed to the Backside of the Wall (as is practis'd in raising early Fruits): by this Method I have seen fair Roses of this Kind blown in *February*; and they may be brought much sooner, where People are curious this way.

You should also cut off the Tops of such Shoots which have been produced the same Spring, early in *May*, from some of these Sorts of Roses which are planted in the open Air, and upon a strong Soil: this will cause them to make new Shoots, which will flower late in Autumn; as will also the late removing the Plants in Spring, provided they do not suffer by Drought, as I have several times experienced, but particularly in the Year 1718. when I had Occasion to remove a large Parcel of these Plants in *May*, just as they were beginning to flower: in doing of which I cut off all the Flower-buds; and, after having open'd a Trench in the Place where they were to be planted, I poured a large Quantity of Water, so as to render the Ground like a Pap; then I took up the Plants, and placed them therein as soon as possible, that their Roots might not dry; and after planting them, I water'd the Ground well again, and cover'd the Surface over with Mulch, to prevent its drying: after this I repeated watering the Plants all over two or three times a Week, in the Evening, until they had taken Root:

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in about three Weeks time the Plants shot out again, and produc'd a great Quantity of Flowers in *August* and *September*, which were as fair as those produced in *June*. This is the only Sort of Rose for this Purpose, there being no other Sort which will flower early and late, except this.

The next Sort of Rose which flowers in the open Air, is the Cinnamon, which is immediately follow'd by the Damask Rose; then the Blush, and *York* and *Lancaster* come; after which the *Provence*, *Dutch*, Hundred-leav'd White, and most other Sorts of Roses, follow; and the latest Sorts are the two Musk Roses, which, if planted in a shady Situation, seldom flower until *September*; and if the Autumn proves mild, will continue often till the Middle of *October*.

The Plants of these two Sorts should be placed against a Wall, Pale, or other Building, that their Branches may be supported; otherwise they are so slender and weak, as to trail upon the Ground: these Plants should not be pruned until Spring, because their Branches are somewhat tender; so that when they are cut in Winter, they often die after the Knife. These produce their Flowers at the Extremity of the same Year's Shoots, in large Bunches; so that their Branches must not be shorten'd in the Summer, lest thereby the Flowers should be cut off. These Shrubs will grow to be ten or twelve Feet high, and must not be check'd in their Growth, if you intend they should flower well; so that they should be placed where they may be allowed room.

The lowest Shrub of all the Sorts here mentioned is the *Scotch* Rose, which rarely grows above two Feet high; so that this must be placed among other Shrubs of the same

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Growth. The red Rose and the *Rosa mundi* commonly grow from three to four Feet high, but seldom exceed that; but the Damask, *Provence*, and *Frankfort* Roses grow to the Height of seven or eight Feet; so that in planting them great Care should be taken to place their several Kinds, according to their various Growths, amongst other Shrubs, that they may appear beautiful to the Eye.

The yellow Rose, as also the *Austrian* Rose, are both Natives of *America*: these were originally brought from *Canada*, by the *French*: the other Varieties, which are now in the Gardens, of these Sorts, have been accidentally obtained, and are preserved by budding them on the other Sorts. The Shrubs of these Roses seldom shoot so strong as most of the other Sorts, especially in the light Land near *London*; where they seldom produce their Flowers. These are esteemed for their Colour, being very different from all the other Sorts of Roses: but as their Flowers have no Scent, and are of short Duration, they do not merit the Price they are generally sold at.

The *Frankfort* Rose is of little Value, except for a Stock to bud the more tender Sorts of Roses upon; for the Flowers seldom open fair, and have no Scent; but it being a vigorous Shooter, renders it proper for Stocks to bud the yellow and *Austrian* Roses, which will render them stronger than upon their own Stocks; but the yellow Roses seldom blow fair within eight or ten Miles of *London*; tho' in the Northern Parts of *Great Britain* they flower extremely well. This Sort must have a Northern Exposure; for if it is planted too warm, it will not flower.

The Damask and monthly Rose seldom flower well in small confined Gardens,

Gardens, nor in the Smoke of *London*; therefore are not proper to plant in such Places; tho' they frequently grow very vigorously there: these always begin to shoot the first of any of the Sorts in the Spring; therefore frequently suffer from Frost, in *April*. which often destroy all their Flowers.

The *Provence* Rose, which is the most common Sort in *England*, is by far the most valuable of them all; tho' most of the other Sorts are preferred to it on account of their Scarcity: but the Flowers of this Sort are the fairest, and have the most agreeable Scent, of any Sort yet known: and this is also very hardy, flowering in many Places where many of the others will scarcely live; which renders it still more valuable: and if it was as rare to be seen as some other Shrubs, would be esteemed perhaps more than any other.

There are at least three Varieties of this Rose, which are promiscuously sold by the Nursery-men, under this Title; one of which is a low Shrub, seldom growing above three Feet high: the Flowers are much smaller, and the Buds rounder, and even; so that before the Flowers open, they appear as if they had been clipp'd with Scissars. This Mr. *Rea* calls the dwarf red Rose; there are few Thorns on the Branches. The other Sort is taller, and the Flowers are large, but not so well scented as the common *Provence* Rose.

All the Sorts of Roses may be propagated either from Suckers, Layers, or by budding them upon Stocks of other Sorts of Roses; which latter Method is only practised for some peculiar Sorts, which do not grow very vigorous upon their own Stocks, and send forth Suckers very sparingly; or where a Person is willing to have more Sorts than

one upon the same Plant; but then it must be observed, to bud such Sorts upon the same Stock as are nearly equal in their Manner of Growth; for if there be a Bud of a vigorous-growing Sort, and some others of weak Growth, the strong one will draw all the Nourishment from the weaker, and intirely starve them.

The best Sort for Stocks is the *Frankfort* Rose, which is a vigorous Grower, and produces strong clean Shoots, which will take the Buds much better than any other Sort of Rose: but you must be very careful to keep the Stock after Budding intirely clear from Suckers or Shoots at the Bottom; for if they are permitted to remain on, they will, in a short time, starve the Buds. The best Season for budding of Roses is in *June*; the Manner of doing it, being the same as for Fruit-trees, need not be repeated here.

If you would propagate them from Suckers, they should be taken off annually in *October*, and transplanted out either into a Nursery in Rows (as hath been directed for several other Sorts of flowering Shrubs), or into the Places where they are to remain: for if they are permitted to stand upon the Roots of the old Plants more than one Year, they grow woody, and do not form so good Roots as if planted out the first Year; and so there is more Danger of their not succeeding.

But the best Method to obtain good-rooted Plants is, to lay down the young Branches in Autumn, which will take good Root by the Autumn following (especially if they are watered in very dry Weather), when they may be taken from the old Plants, and transplanted where they are to remain. The Plants which are propagated by Layers, are

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not so apt to send out Suckers from their Roots, as those which are from Suckers; therefore should be preferred before them; because they may be much easier kept in Compals: and these will also flower much stronger. These Plants may be transplanted any time from *October* to *April*; but when they are design'd to flower strong the first Year after planting, they should be planted early; tho', as I said before, if they are planted late in the Spring, it will cause them to flower in Autumn, provided they do not suffer by Drought.

Most of these Sorts delight in a rich moist Soil, and an open Situation, in which they will produce a greater Quantity of Flowers, and those much fairer, than when they are upon a dry Soil, or in a shady Situation. The Pruning which they require is only, to cut out dead Wood, and the Suckers cleared off, which should be done every Autumn: and if there are any very luxuriant Branches, which draw the Nourishment from the other Parts of the Plant, they should be taken out, or shorten'd, to cause it to produce more Branches, if there be Occasion for them to supply a Vacancy; but you must avoid crowding them with Branches, which is as injurious to these Plants as to Fruit-trees; for if the Branches have not an equal Benefit of the Sun and Air, they will not produce their Flowers so strong, nor in so great Plenty, as when they are more open, and better expos'd to the Sun; so that the Air may circulate the more freely between them.

ROSA SINENSIS. *Vide* Ketmia Sinensis.

ROSE THE GUILDER. *Vide* Opulus.

ROSE-TREE. *Vide* Rosa.

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ROSEMARY. *Vide* Rosmarinus.

ROSMARINUS, Rosmary.

The Characters are;

It is a verticillate Plant, with a labiated Flower, consisting of one Leaf, whose Upper-lip or Crest is cut into two Parts, and turns up backward, with crooked Stamina, or Chives: but the Under-lip, or Beard, is divided into three Parts; the middle Segment being hollow like a Spoon: out of the two or three teeth'd Flower-cup arises the Pointal, attended, as it were, by four Embryoes, which afterward turn to so many Seeds, that are roundish, and are inclosed in the Flower-cup.

The Species are;

1. ROSMARINUS *hortensis, latiore folio. Mor. Hist.* Broad-leav'd Garden Rosmary.

2. ROSMARINUS *hortensis, angustiore folio. C. B. P.* Narrow-leav'd Garden Rosmary.

3. ROSMARINUS *friatus, sive aurcus. Park. Theat.* The Gold-striped Rosmary.

4. ROSMARINUS *hortensis, angustiore folio, argenteus. H. R. Par.* The narrow-leav'd Silver-strip'd Rosmary.

5. ROSMARINUS *Almeriensis, flore majore spicato purpurascete. Tourn.* Rosmary of Almeria, with a large spiked purplish Flower.

6. ROSMARINUS *spontaneus, folio eleganter variegato. Boerb. Ind.* Broad-leav'd Rosmary, with an elegant striped Leaf.

Dr. *Linnaeus* has separated this Genus, with some others, from the Clats where they have by all Botanists been rang'd, on account of their having but two Stamina in each Flower: whereas the other Plants of this Class have four, two long, and two short: but this is not altogether justifiable; since in every other Character,

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rafter, they agree with their Congeners.

These Plants grow plentifully in the Southern Parts of *France*, in *Spain*, and in *Italy*, where, upon dry rocky Soils near the Sea, they thrive prodigiously; but, notwithstanding they are produc'd in warm Countries, yet they are hardy enough to bear the Cold of our ordinary Winters very well in the open Air, provided they are planted upon a poor, dry, gravelly Soil, on which they will endure the Cold much better than upon a richer Ground, where the Plants will grow more vigorously in Summer, and so be more subject to Injury from Frost; and they will not have so strong an aromatic Scent as those upon a dry barren Soil.

Those Sorts with striped Leaves are somewhat tender, and should either be planted near a warm Wall, or in Pots filled with fresh light Earth, and sheltered in Winter under a Frame, otherwise they will be subject to die in frosty Weather.

All these Sorts may be propagated by planting Slips or Cuttings of them in the Spring of the Year, upon a Bed of fresh light Earth; and when they are rooted, they may be transplanted into the Places where they are design'd to grow; but it will be proper to do this about the Beginning of *September*, that they may take Root before the frosty Weather comes on; for if they are planted too late in Autumn, they seldom live thro' the Winter, especially if the Weather proves very cold; so that if you do not transplant them early, it will be the better Method to let them remain unremoved until *March* following, when the Frost is over, observing never to transplant them at a Season when the dry East Winds blow, but rather defer the doing of it until the Season is

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more favourable; for if they are planted when there are cold drying Winds, they are apt to dry up their Leaves, and kill them: but if there happen to be some warm Showers soon after they are removed, it will cause them to take Root immediately; so that they will require no farther Care, but to keep them clear from Weeds.

Altho' these Plants are tender when planted in a Garden, yet when they are by Accident rooted in a Wall (as I have several times seen them), they will endure the greatest Cold of our Winters, tho' exposed much to the cold Winds; which is occasioned by the Plants being more stunted and strong, and their Roots being drier.

The Flowers of the narrow-leav'd Garden Sort are used in Medicine, as are also the Leaves and Seeds.

ROYENA, *African Bladder-nut*.

The Characters are;

The Empalement of the Flower is of one Leaf, swelling out in a Belly, and blunt at the Brim, where it is indented in five Parts: the Flower is of one Leaf, having a Tube the Length of the Empalement; but spreads open at the Top, where it is slightly cut into five Parts: in the Centre is situated the hairy Pointal, which is attended by ten short Stamina: the Pointal afterward becomes an oval Capsule, having four Furrows opening in one Cell, in which are contained four oblong triangular Seeds.

The Species are;

1. ROYENA *foliis ovatis*. Lin. Hort. Cliff. *African Bladder-nut*, with a single shining Leaf.

2. ROYENA *foliis lanceolatis glabris*. Flor. Leyd. *African Bladder-nut*, with smooth spear-shap'd Leaves; by some call'd *African Whortle-berry*.

3. ROYENA *foliis lanceolatis hirsutis*.
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Jutis. Flor. Leyd. African Bladder-nut, with hairy spear-shap'd Leaves.

The first Sort has been long an Inhabitant of some curious Gardens in *England*: but it is not very common here; for it is very difficult to propagate. The surest Method of doing it, is by laying down the young Branches, and these will seldom take Root under two Years. I have also raised a few by Cuttings, but it was two Years before they put out Roots: and it was three Years before they began to grow upward; and then they made but little Progress.

This Plant will grow eight or ten Feet high, and puts out its Branches on every Side, so may be trained up to a regular Head: these Branches are clothed with oval shining Leaves, which are placed alternately, and continue all the Year; so that it makes an agreeable Variety among other Exotic Plants in the Green-house, during the Winter-season: the Flowers are produced from the Wings of the Leaves, along the Branches; but as they have little Beauty, few Persons regard them. I have not observed any Fruit produced by these Plants in *England*. This was described and figured by Dr. Herman, who was Professor of Botany at *Leyden*, under the Title of *Staphylodendron Africanum, folia singulari lucido*.

The other two Sorts are at present rare in the *English* Gardens; but in the curious Gardens in *Holland* they are in greater Plenty. They are all of them Natives of the *Cape of Good Hope*; so are hardy enough to live in a common Green-house, with Myrtles and Orange-trees: these Plants may be treated in the same way.

These two Sorts are as difficult to propagate as the first; which is the

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Cause of their Scarcity: the best time to lay down the Branches of these Plants is in *August*; but the Cuttings should be planted in *July*: they must be planted in Pots, and shaded from the Sun in Summer, and sheltered under a Frame in Winter.

RUBIA, Madder.

The Characters are;

The Flower consists of one single Leaf, which is cut into four or five Segments, and expanded at the Top: the Flower-cup afterward becomes a Fruit composed of two juicy Berries, closely joined together, containing Seed, for the most part hollow'd like a Navel: to which may be added, The Leaves being rough, and surrounding the Stalks in Whorles.

The Species are;

1. RUBIA tinctorum sativa. C. B. P. Cultivated Dyers Madder.
2. RUBIA sylvestris aspera, quæ sylvestris Dioscoridis. C. B. P. Wild Madder.
3. RUBIA sylvestris Monspelulana major. J. B. Great wild Madder of Montpelier.

The first of these Sorts was formerly cultivated in divers Parts of *England*, for the Dyers Use; but of late Years it has been wholly neglected; so that at present I believe there is scarce any of it cultivated, except in small Quantities for medicinal Use: how this Plant came to be so much neglected in *England*, I cannot imagine, since it will thrive as well here as in any Country in *Europe*; and the Consumption of it in *England* is pretty large; for I have been informed, that we pay upwards of 30,000 *l.* annually for this Commodity, which might be easily sav'd to the Nation, were it cultivated here. At present the greatest Quantity of it is cultivated in *Flanders* and *Holland*; from whence we are annually furnish'd with it, in three

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three different Manners, and distinguish'd by the Names of Madder in the Branch, Madder in the Bundle, and Madder unbundled. The first Sort is brought to us in the Root, as it comes out of the Ground, without any other Preparation than that of being dried. The second Sort is that of Bunch Madder, or such as is made into Bundles, which is Madder in Branch, first freed from the Bark and the Pith, then ground by a Mill into gross Powder, as we buy it. The third Sort is the Madder unbundled, that is, the Branches of Madder ground into Powder; but the Bunched Madder, or that in Bundles, is the best, which, for its Excellency, when it is fresh, is made into Bales, or put into Casks: 'tis of a pale Red; but, as it grows older, increases its Colour to a fine Red: that of *Zealand* is esteemed the best for the Dyers Use.

In the Year 1727. I observ'd a great Quantity of this Plant cultivated in *Holland*, between *Helvoetsluice* and the *Brill*; and it being the first time I had ever seen any considerable Parcel of it, I was tempted to make some Inquiries about its Culture, and take some Minutes of it down upon the Spot, which I shall here insert, for the Use of such as may have Curiosity to attempt the Culture of it.

In Autumn they plow the Land, where they intend to plant Madder, in the Spring, and lay it in high Ridges, that the Frost may mellow it; in *March* they plow it again; and at this Season they work it very deep, laying it up in Ridges eighteen Inches asunder, and about a Foot high; then about the Beginning of *April*, when the Madder will begin to shoot out of the Ground, they open the Earth about their old Roots, and take off all the Side-

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shoots, which extend themselves horizontally, just under the Surface of the Ground, preserving as much Root to them as possible: these they transplant immediately upon the Tops of the new Ridges, at about a Foot apart, observing always to do this when there are some Showers, because then the Plants will take Root in a few Days, and will require no Water.

When the Plants are growing, they carefully keep the Ground hoed, to prevent the Weeds from coming up between them; for if they are smothered by Weeds, especially when young, it will either destroy or weaken them so much, that they seldom do well after. In these Ridges they let the Plants remain two Seasons, during which time they keep the Ground very clean; and at *Michaelmas*, when the Tops of the Plants are decay'd, they take up the Roots, and dry them for Sale. This is what I could learn of their Method of cultivating this Plant; to which I will subjoin a few Observations of my own, which I have since made upon the Culture of Madder in *England*. And, first, I find there is no Necessity for laying the Ground up in Ridges in *England*, as is practised by the *Dutch* (especially in dry Land), because the Places where I saw it were very wet Land, which is often floated in Winter; so that if the Plants were not elevated upon Ridges, their Roots would rot in Winter. Secondly, They should be planted at a greater Distance, in *England*; the Rows should be at least three Feet Distance, and the Plants eighteen Inches asunder in the Rows; for as they extend themselves pretty far under-ground, so, where they are planted too near, their Roots will not have room to grow. And, thirdly, I find, that if all the

horizontal Roots are destroyed from time to time, as they are produc'd, it will cause the large downright Roots to be much bigger; in which the Goodness of this Commodity chiefly consists: for if the upper Roots are suffered to remain, they will draw off the principal Nourishment from the downright Roots, as I have experienced; for I planted a few Roots upon the same Soil and Situation, which were of equal Strength, and rooted equally well: half of these I hoed round, and cut off the horizontal Roots; and the other Half I permitted the horizontal Roots to remain on; and when I took them all up, those which I had hoed about, and kept clear from horizontal Roots, were almost as large again as the other, and the Roots were double the Weight; which plainly proves it necessary to cut off those superficial Roots: so that where this Plant is cultivated in Quantity, it will be an excellent Method to use the Hoeing-plough, to stir the Ground, and destroy the Weeds: for, with this Instrument, a large Quantity of Ground may be kept clean, at a small Expence: and as this will stir the Ground much deeper than a common Hoe, it will cut off the superficial Roots, and thereby improve the principal Roots.

This Crop of Madder should be shifted into fresh Land; for the Ground which has had one Crop, will not be fit to receive another in less than four Years; during which time any other annual Crop may be cultivated on the Land.

The manner of drying and preparing these Roots for Use, I am not acquainted with, having never had an Opportunity of seeing that Part, so can give no Instructions concerning it; but whoever shall have Curiosity enough to cultivate this useful

Plant, might easily inform themselves, by going over to *Holland* at the Season of taking up the Roots.

What I could learn from the People with whom I conversed in *Holland* on this Affair, was, that they pared off the outside Rind of the Roots, which is dried by itself, and is called Mull-madder. Then they pared off another fleshy Part of the Root, which is made into another Madder, and is called Number O; but the Inside, or Heart of the Root, is called Crop-madder. The first Sort is not worth above fifteen or sixteen Shillings *per* hundred Weight; the second Sort is sold at about forty Shillings; but the third Sort will sell for five Pounds *per* Hundred. I have since been inform'd, that there is no Necessity of dividing it into these three Sorts for Use; for if the Whole is dried, and ground together, it will answer the Dyers Purpose full as well. These Roots must be dried on a Kiln, before they are ground to Powder: for which Purpose, I suppose, the same as are used for drying of Malt might be made useful for this Commodity.

By some few Experiments which I made, I imagine that one Acre of good Madder, when fit to take up for Use, will be worth above one hundred Pounds; so that if it were to stand three Years in the Ground, and to be planted on Land of three Pounds *per* Acre, it would pay exceeding well; considering the annual Culture (if perform'd by a Plough) will be no great Expence; the principal Charge being in the first preparing of the Land, and the planting: but whoever has a mind to cultivate this Plant, might rent very good Land for this Purpose, for twenty-five or thirty Shillings *per* Acre, at a Distance from *London*, but near some Navigation.

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The two Sorts of wild Madder are of no Use; though their Roots seem to be of the same Quality with the manured Sort; and as they are never cultivated in Gardens, it is needless to say any thing more of them in this Place.

These Plants love a loose Soil, neither too dry nor over-wet; but will do better on a dry than on a wet Soil, because in such Places the Roots are apt to rot in Winter.

RUBEOLA, Petty-madder.

The Characters are;

It hath a funnel-shaped Flower, consisting of one Leaf, which is slightly cut into four Parts at the Brim; resting on the Empalement, which is sometimes double, and sometimes single: this Empalement afterward becomes a Fruit, composed of two naked Seeds,

The Species are;

1. RUBEOLA *latiori folio*. Inst. R. H. Broad-leav'd Petty-madder.

2. RUBEOLA *angustiore folio*. Inst. R. H. Narrow-leav'd Petty-madder.

3. RUBEOLA *vulgaris quadrifolia laevis, floribus purpurascens*. Inst. R. H. Common smooth four-leav'd Petty-madder, with purplish Flowers, commonly called Squinancy-wort.

4. RUBEOLA *Lusitanica aspera, floribus purpurascens*. Inst. R. H. Rough Petty-madder of Portugal, with purplish Flowers.

5. RUBEOLA *Cretica saxatilis fruticosa, gallii folio, flore purpureo violaceo*. Tourn. Cor. Shrubby rock Petty-madder of Candy, with a Ladies-bedstraw-leaf, and a violet purple Flower.

6. RUBEOLA *Cretica saxatilis frutescens, flore flavescente*. Tourn. Cor. Shrubby rock Petty-madder of Candy, with a yellowish Flower.

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7. RUBEOLA *Cretica foetidissima frutescens myrtifolia, flore magno suave-rubente*. Tourn. Cor. The most stinking shrubby Petty-madder of Candy, with a Myrtle-leaf, and a large pale-red Flower.

8. RUBEOLA *Orientalis foetida fruticosa serpyllifolia, flore parvo suave-rubente*. Tourn. Cor. Shrubby stinking Eastern Petty-madder, with a Mother-of-thyme-leaf, and a small pale-red Flower.

9. RUBEOLA *Orientalis, foliis gallii, flore multiplici ex viridi flavescente*. Tourn. Cor. Eastern Petty-madder, with many greenish-yellow Flowers.

The first, second, fourth, and ninth Sorts are annual Plants, which decay soon after they have perfected their Seed. These are preserved in the Gardens of those Persons who are curious in Botany, for the sake of Variety. They are very hardy Plants, which require no other Care than to clear them from Weeds: for if they are permitted to scatter their Seeds, the Plants will come up, and maintain their Place, if they are not overborne with larger Weeds. The Seeds of these Plants may be sown either in Spring or Autumn, in the Places where they are to remain, which may be in almost any Soil; but they love an open Situation.

The third Sort grows wild on chalky Hills, in divers Parts of England, where the Branches trail on the Ground, and produce Tufts of purplish Flowers from the Joints where the Leaves are set on; which open in June, and the Seeds are ripe in August; but the Roots abide many Years. This Plant is esteemed efficacious in the Cure of Quinseys, either taken inwardly, or outwardly applied.

The fifth, sixth, seventh, and eighth Sorts were discover'd by Dr. Tournefort

fort in the *Lewant*. These are abide-
ing Plants, which become shrubby,
and, by their different Appearances,
make an agreeable Variety in a
Garden. They may be propagated
by sowing their Seeds on a Bed of
fresh undunged Soil, in the Spring;
and when the Plants come up, they
must be kept clear from Weeds, and
in very dry Weather they should be
refreshed with Water; and when
the Plants are about three or four
Inches high, they should be trans-
planted, some of each Sort, into Pots,
that they may be shelter'd under an
Hot-bed-frame in Winter; and the
others into dry warm Borders of
poor Earth; for in such Places
where the Plants grow slowly, they
will live through the Winter, better
than when they are planted in a rich
Soil.

RUBUS, The Bramble, or Rasp-
berry-bush.

The Characters are;

*It hath a Flower consisting of five
Leaves, which are placed circularly,
and expand in form of a Rose: the Flow-
er-cup is divided into five Parts con-
taining many Stamina, in the Bosom of
the Flower; in the Centre of which
rises the Pointal, which afterward
becomes the Fruit, consisting of many
Protuberances, and full of Juice.*

The Species are;

1. RUBUS *major, fructu nigro.* J.
B. The common Bramble, or
Blackberry-bush.

2. RUBUS *minor, fructu cæruleo,*
J. B. The Dewberry-bush, or
lesser Bramble.

3. RUBUS *vulgaris major, fructu
albo.* Raii Syn. The common great-
er Bramble-bush, with white Fruit.

4. RUBUS *vulgaris major, folio
elegantè variegato.* The greater
Bramble-bush, with a beautiful stri-
ped Leaf.

5. RUBUS *Idæus spinosus, fructu
rubro.* J. B. The Raspberry-bush,
Framboise, or Hind-berry.

6. RUBUS *Idæus spinosus, fructu
albo.* J. B. The Raspberry-bush,
with white Fruit.

7. RUBUS *Idæus spinosus, fructu
rubro serotino.* The Raspberry-bush,
with late-red Fruit.

8. RUBUS *Idæus non spinosus.* J.
B. The Raspberry-bush, without
Thorns.

9. RUBUS *Idæus, fructu nigro,
Virginianus.* Banister. The *Virgi-
nian* Raspberry-bush, with black
Fruit.

10. RUBUS *odoratus.* Cornut. *Vir-
ginian* flowering Raspberry, *vulgo.*

11. RUBUS *Americanus, magis
erectus, spinis rarioribus, stipite cæru-
leo.* Pluk. Alm. The Upright *Pen-
sylvania* Bramble, or Raspberry-
bush.

12. RUBUS *Alpinus humilis.* J.
B. Dwarf Bramble of the Alps.

13. RUBUS *vulgaris, spinis ca-
rens.* H. R. Par. Common Bram-
ble, without Spines.

14. RUBUS *spinosus, foliis & flore
elegantè laciniatis.* Inst. R. H. Prickly
Bramble, with Leaves and
Flowers elegantly jagged.

15. RUBUS *flore albo pleno.* H. R.
Par. The Bramble with double
white Flowers.

16. RUBUS *non spinosus, fructu
nigro majore, Polonicus.* Barr. Icon. Poland
Bramble without Thorns,
and a larger black Fruit.

The first and second Sorts are ve-
ry common in Hedges, and upon
dry Banks, in most Parts of England,
and are rarely cultivated in Gardens.
The third Sort was found by Mr.
Jacob Bobart, in an Hedge not far
from Oxford; and hath since been
cultivated in several Gardens as a
Curiosity. This does not only dif-
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fer from the common Bramble in the Colour of the Fruit, but also in that of the Bark and Leaves, which, in this Sort, are of a lively Green; whereas those of the common Sort are of a dark-brown Colour. The fourth Sort is a variety of the common Bramble, differing therefrom only in having striped Leaves, for which it is preserv'd by some Persons who are curious in collecting variegated Plants.

The thirteenth Sort is in all respects like the common Bramble, excepting in this Particular, that there are no Thorns on the Branches or Leaves of this Sort.

The fourteenth Sort differs from the common Bramble in having the Leaves and Flowers curiously jagged.

The fifteenth Sort produces large Spikes of Flowers, which are very large and double, so that they make a fine Appearance, being almost as large and double as Roses. This merits a Place in every good Garden; because it may be planted in any abject Part of the Garden, under Trees in Wilderness-quarters; where it will thrive and flower as well as when planted in a more open Situation.

The sixteenth Sort is not very common in *England*, but is a Native of *Poland*. This produces much larger Fruit than the common Bramble; so is preserv'd in the Gardens of some curious Persons for the sake of Variety.

The Raspberry-bush is also very common in divers Woods in the Northern Counties of *England*; but is cultivated in all curious Gardens for the sake of its Fruit. Of this there are three Kinds, which are cultivated commonly in Gardens near *London*; which are the common red, late-red, and the white Sorts; but

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the Sort without Thorns is less common at present than the other.

The ninth, tenth, eleventh, and twelfth Sorts are preserv'd as Curiosities in several Gardens near *London*; as their Fruits are of no Value, they are scarcely worth cultivating, except in Botanic Gardens for Variety.

All the Sorts of Bramble are easily propagated by laying down of their Shoots, which in one Year will be sufficiently rooted to transplant; so may then be cut off from the old Plants, and planted where they are design'd to remain; which should be in Wilderness-quarters, or other abject Parts of the Garden, where they may have room to spread, without incommoding other Plants.

The Raspberry is always cultivated in Gardens, for the sake of the Fruit. There is a Variety of this Plant, which produces two Crops of Fruit every Year; one in the usual Season in *July*, and the second Crop in *October*; and when the Autumn proves favourable, the second Crop will ripen extremely well; and, in some Years, have been in as great Plenty as the first Crop.

The Raspberries are always propagated by Suckers, tho' I should prefer such Plants as are raised by Layers; because they will be better rooted, and not so liable to send out Suckers as the other; which generally produce such Quantities of Suckers from their Roots, as to fill the Ground; and where they are not carefully taken out, or thinn'd, cause the Fruit to be small, and in less Quantities; especially when the Plants are placed near each other, which is too often the Case; for there are few Persons who allow these Plants sufficient room.

In preparing these Plants, their Fibres should be shortened; but the Buds,

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Buds, which are placed at a small Distance from the Stem of the Plant, must not be cut off, because those produce the new Shoots the following Summer. These Plants should be planted about two Feet asunder in the Rows, and four or five Feet Distance Row from Row; for if they are planted too close, their Fruit is never so fair, nor will ripen so kindly, as when they have room for the Air to pass between the Rows. The Soil in which they thrive best, is a fresh sandy Loam, neither too moist nor over-dry; the Extreme of either being injurious to these Plants.

The time for dressing of them is in *October*, when all the old Wood, which produced Fruit the preceding Summer, should be cut down to the Surface of the Ground, and the young Shoots must be shorten'd to about two Feet in Length; then the Spaces between the Rows should be well dug, to encourage their Roots; and if you bury a very little rotten Dung therein, it will make them shoot vigorously the Summer following, and their Fruit will be much fairer. During the Summer-season they should be kept clear from Weeds, which, with the before-mention'd Culture, is all the Management they will require: but it is proper to make new Plantations once in three or four Years, because those are better than where the Plants are suffer'd to remain longer.

The *Virginian* flowering Raspberry is commonly propagated in the Nurseries as a flowering Shrub. The Flowers of this Sort are as large as small Roses; and there is a Succession of them for two Months or more, so that they make an agreeable Variety during their Continuance. This Sort has produc'd Fruit in *England*, which were larger than

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those of the common Sort; but had little Flavour. These were ripe in *September*, and the Plants on which they produc'd, grew on a strong Soil; but it is very rare to see any Fruit upon these Plants.

The eleventh Sort frequently produces Fruit in *England*, which are in Appearance very like the common Blackberry; but have a different Flavour. These ripen late in the Autumn, and are not worth cultivating for their Fruit.

RUDBECKIA, Dwarf Sunflower, *vulgo*.

The Characters are;

It hath Male and Hermaphrodite Flowers inclos'd in one common Empalement: the Empalement is compos'd of two Orders of Leaves: the Flower has a Border of Rays, and the Middle is occupied by a great Number of Hermaphrodite Flowers, which form a Cone: the Hermaphrodite Flowers are tubulous, and cut into five Parts at the Brim; these have the Pointal situated in their Centre, which is attended by five slender Stamina: the Male Flowers, which grow round the Border, and form the Rays, are stretched out on one Side like a Tongue, which is cut into two or three Parts, and is plain: these are barren; but the Hermaphrodite Flowers have each a single oblong Seed, which is four-cornered, succeeding them.

This Genus of Plants was by *Monsieur Vaillant* titled *Obeliscotheca*; but this being a compound Name, *Dr. Linnæus* has altered it to this of *Rudbeckia*, in Honour to *Dr. Rudbeck*, who was Professor of Botany at *Upsal* in *Sweden*.

The Species are;

1. *RUDBECKIA foliis lanceolatis alternis indivisis, petalis radii integris. Flor. Virg.* Dwarf Sunflower, with yellow Rays, and a dark Middle.

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2. *RUDBECKIA foliis lanceolatis alternis indivisis, petalis radii bifidis. Flor. Vir. Dwarf American Sunflower*, with purple Rays, which are bifid.

3. *RUDBECKIA foliis compositis laciniatis. Lin. Virid. American Sunflower*, with Leaves which are composed of many Parts, and deeply cut.

4. *RUDBECKIA foliis compositis angustioribus laciniatis American Sunflower*, with narrow cut compound Leaves.

5. *RUDBECKIA foliis compositis integris. Flor. Leyd. American Sun-flower*, with whole compound Leaves.

6. *RUDBECKIA foliis oppositis lanceolato-ovatis, petalis radii bifidis. Flor. Vir. American Sunflower*, with oval spear-shap'd Leaves plac'd opposite, and the Petals bifid.

The first Sort has been many Years preserv'd in several curious Gardens in *England*. The Seeds of this Sort were sent from *Virginia*, under the Title of *Chrysanthemum Americanum, doronici folio, flore luteo, umbone atro-purpureo*. This is a perennial Plant, which has rough oval Leaves growing close to the Ground; from between these, in the Spring, the Footstalks of the Flowers come out, which grow about two Feet high, having two or three small Leaves placed alternately on each. The Top is crowned by a single Flower, about the Size of a large Marigold, having a Border of yellow Rays, and a conical dark Middle or Umbone. These Flowers are of long Duration; each single Flower will continue a Month in Beauty; and as there is commonly a Succession of them on the same Plant, they continue from the Middle of *July* to the Middle of *October* in Flower; which renders these

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Plants valuable. As this Sort rarely produces good Seeds in *England*, the Plants are commonly propagated by parting their Roots. The best time for this is in *March*, before they begin to shoot; but there must be Care had not to part the Roots into small Heads, especially where they are expected to flower strong the same Summer; but in the Nurseries they are usually divided very small for the Increase of the Plants. But the Plants which are raised from Off-sets never flower so strong as those produced from Seeds; so that where the Seeds can be obtained, it is by much the best Method to propagate them that way.

The second Sort is also a Native of *Virginia* and *Carolina*, and is more rarely to be found in the *English* Gardens than the first. The Leaves of this are longer, and more pointed, than the first, and are not so hairy. The Stalks of the Flowers are taller, and are frequently naked, having no Leaves coming out. The Flower has a Border of narrow long purple Rays, which are reflexed; so that these Flowers make not any great Appearance. However, as it is a scarce Plant, it is generally sold at a good Price by those who deal in curious Plants.

This Sort is propagated in the same manner as the former; but doth not produce so great Plenty of Off-sets as the first, which occasions the present Scarcity of the Plants.

When the Seeds of these Plants can be procured, they should be sown in Pots filled with fresh light Earth, and placed where they may have only the morning Sun, and frequently watered in dry Weather. Some of the Plants may probably come up the first Year; but the greatest Part of them will not appear till the Spring following; so that the Earth

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Earth should not be disturbed ; and if any of the Plants should come up, they may be drawn out, and planted each into separate Pots ; but the Seed-pots should be placed under a Frame, where they may be shelter'd from severe Frost, but in mild Weather have a large Share of free Air ; and in the Spring following the Plants will come up : when they have obtained Strength, they may be planted out into a Border of light Earth, about four Inches asunder each Way. In this Bed they may remain until the Autumn following, when they should be transplanted where they are to stand for Flowering, which should be in a warm Situation ; otherwise, if the Winter proves severe, they will be destroyed : therefore it is adviseable to plant a few Plants of each Sort in Pots, that they may be placed under an Hot-bed-frame in Winter, to shelter them from hard Frost, in order to preserve the Kinds.

The third, fourth, and fifth Sorts are very hardy Plants, though they came originally from the same Country as the others. These grow six or eight Feet high, and produce a great Number of Flowers in a sort of Umbel on the Tops of the Branches ; which are in Shape like small Sun-flowers, so have been by many ranged in that Genus. These Plants flower in *July* and *August*, and are proper Furniture for the Borders of large Gardens. They are propagated by Off-sets, which the Roots furnish in plenty ; and should be planted in *October*, that they may get good Root before the Frost sets in ; and then they will flower strongly the following Summer : for when the Plants are removed in the Spring, they will not get good Root in the Ground before they put out their Flower-stems ; so cannot produce their Flowers so large. These

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also perfect their Seeds in *England* in favourable Years.

The sixth Sort should be treated in the same manner as the two first ; but it is somewhat hardier, and will perfect its Seeds in good Summers in *England*, so may be propagated in greater Plenty.

RUELLIA.

The Characters are ;

It hath a funnel-shaped Flower, consisting of one Leaf, which is cut into several Parts at the Brim, from whose Empalement arises the Pointal, which is fixed like a Nail in the Bottom of the Flower, and afterward becomes a membranaceous Pod, which opens into several Parts, and is filled with small Seeds.

The Species are ;

1. *RUELLIA Americana humilis, asphodeli radice. Plum. Nov. Gen.* Dwarf American Ruellia, with an Asphodel-root.

2. *RUELLIA Caroliniana, foliis oblongis angustis, flore purpureo. Houst.* Carolina Ruellia, with narrow oblong Leaves, and a purple Flower.

3. *RUELLIA Americana humilis, parvo flore caeruleo, capsulis teretibus. Houst.* Dwarf American Ruellia, with a small blue Flower, and a taper Pod.

The first Sort was discovered by Father *Plumier* in *America*, who gave this Name to the Genus, in Honour of Dr. *Ruellius*, who was a very learned Person in Natural History, and lived about two hundred Years past.

The second Sort grows plentifully in *South-Carolina*, from whence it was brought into the *English* Gardens. This Sort grows much taller than the other two.

The third Sort was discover'd by the late Dr. *William Houstoun* in *Jamaica*, who sent the Seeds into *England*. The Flowers of this Kind are much

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much smaller than those of the other Sorts, and are of short Duration, seldom continuing above one Day.

These Plants are propagated by Seeds, which must be sown early in the Spring in Pots filled with light rich Earth, and plunged into a moderate Hot-bed; and when the Plants come up, they must be transplanted each into a separate small Pot filled with rich Earth, and plunged into an Hot-bed of Tanners Bark, where they must be shaded from the Sun, until they have taken new Root; after which time they must have fresh Air admitted to them every Day in warm Weather, and be constantly watered three or four times a Week during the Summer-season. If the Plants thrive well, those of the first and third Sort will produce Flowers the July following, and will perfect their Seeds in August; but the Roots will continue, provided they are plunged into the Bark bed in the Stove, and kept in a moderate Temperature of Heat.

The second Sort, which rises much higher than either of the other, will require to be shifted into larger Pots, by the Beginning of June; and then they should be remov'd into the Stove, or a Glass-case, where they may have a larger Share of Air; otherwise they will draw up very weak, which will prevent their Flowering. This Sort dies to the Root every Winter; but if the Pots are placed in a warm Stove, their Roots will live, and put out again the following Spring, so may be continued several Years. This Sort will ripen Seeds very well, provided the Plants are shelter'd when they are in Flower.

The first Sort is by much the most beautiful Plant, the Flowers being four times as large as those of either of the other Sorts, and are of a fine

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blue Colour; so that it makes a fine Appearance when it flowers; and as the Plants are small, they may be kept in a little Compass, and are as well worth preserving, as most tender Exotic Plants. When this Plant is shifted (which should be the Beginning of April, before the new Leaves are put out), great Care should be taken, that the Roots are not broken or bruised; for as they consist of many thick Tubers, if these are injured, the Plant is frequently destroy'd.

RUSCUS, Knee-holly, or Butchers broom.

The Characters are;

The Flower-cup consists of one Leaf, which is cut into several Divisions, out of which is produc'd a globular bell-shaped Flower, consisting also of one Leaf; in the Centre of which arises the Pointal, which afterward becomes a soft roundish Fruit, in which are inclos'd one or two hard Seeds.

The Species are;

1. *Ruscus myrtifolius aculeatus*. Tourn. The common Knee-holly, or Butchers-broom.

2. *Ruscus angustifolius, fructu folio innascente*. Tourn. Narrow-leav'd Butchers-broom, or Alexandrian Laurel, with the Fruit growing on the Leaves.

3. *Ruscus latifolius, fructu folio innascente*. Tourn. Broad-leav'd Butchers-broom, or Alexandrian Laurel, with the Fruit growing on the Leaves.

4. *Ruscus angustifolius, fructu summis ramulis innascente*. Tourn. Narrow-leav'd Butchers-broom, or Alexandrian Laurel, with the Fruit growing upon the Tops of the Branches.

5. *Ruscus latifolius crenatus, fructu crenis foliorum prodeuntibus*. Broad leav'd Alexandrian Laurel, with

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with the Fruit growing upon the Edges of the Leaves.

6. *Ruscus vulgaris, folio ampliore. Hort. Paf.* Butchers-broom with a larger Leaf.

7. *Ruscus vulgaris, folio angustiore.* Narrow-leav'd Butchers-broom.

The first Sort is very common in the Woods in divers Parts of *England*, and is rarely cultivated in Gardens. The Roots of this Kind are sometimes used in Medicine; and the green Shoots are cut, and bound into Bundles, and sold to the Butchers, who use it as Besoms to sweep their Blocks; from whence it had the Name of *Butchers-broom*.

The second, third, fourth, sixth, and seventh Sorts are hardy Plants; and though not Natives of *England*, yet may be preserv'd in Gardens, if planted in a shady Situation, as in Wilderness-quarters, &c. where they serve to intermix with other Wood-plants, to make Variety. The second and third Sorts are sometimes used in Medicine.

The second Sort has small Leaves growing out of the Middle of the larger; so it is called *Bis-lingua* by some Writers. The other stands in the Dispensaries under the Title of *Laurus Alexandrina*.

These Plants produce their Flowers and Fruit on the Middle of their Leaves, which are of the Size of small Cherries; and being of a fine red Colour, make a pretty Appearance, especially when there is plenty of the Fruit on the Plants. The Fruit is ripe in Winter; so that there are some Persons who cut the Branches with their ripe Fruit, to put into Basons, for adorning their Rooms at that Season, when there are few other Plants in Beauty; and these will keep fresh a long time, when put into Water.

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These Plants may be propagated by parting their Roots in the Spring of the Year, before they begin to make new Shoots; observing, if the Season be dry, to water them until they have taken Root; after which they will require no farther Care, but to keep them clear from Weeds; observing not to transplant or disturb their Roots oftener than once in three Years; for when they are often remov'd, they seldom thrive well, and rarely produce Fruit.

The fifth Sort is tender, and must therefore be placed in Pots filled with fresh Earth, and in Winter put into the Green-house; but it should be placed where it may have free Air in mild Weather, and be constantly watered: in which Management this Plant will send forth Stems six or eight Feet high, furnish'd with Leaves from Bottom to Top; and in *June* will be closely set with Flowers upon their Edges, which make a very beautiful and odd Appearance, and renders it worthy of a Place in every good Collection of Plants. This is also propagated by parting the Roots, as the former, which should not be done very often; because, if the Roots are not permitted to remain some time to get Strength, they will produce but weak Shoots, and very few Flowers; and in the Strength of their Shoots, and Number of Flowers, the greatest Beauty of these Plants consists. This Sort grows plentifully at *Madeira*, from whence the Seeds may be procur'd; but this commonly lies in the Ground a Year before the Plants come up; so should be sown in Pots filled with fresh Earth, and placed under an Hot-bed-frame in Winter, to screen the Seeds from the Frost; and the following Spring the Plants will appear.

It is generally supposed, that it was

was one of these Plants which the antient Victors were crown'd with; since from the Pliableness of their Branches, whereby they are very proper to wreath into any Figure, as also from the Resemblance those Coronets, which we see surrounding the Heads of some antient Busts, have to the Leaves of these Plants, it is a probable Conjecture at least.

RUTA, Rue.

The Characters are;

The Flower for the most part consists of four hollow Leaves, which are placed orbicularly, and expand in form of a Rose; out of whose Flower-cup arises the Pointal, which afterward becomes a roundish Fruit, which is generally four-cornered, and compos'd of four Cells fix'd to an Axis, and full of small angular Seeds.

The Species are;

1. RUTA *major hortensis latifolia*. Mor. Hist. The common broad-leav'd Garden-rue.

2. RUTA *hortensis minor tenuifolia*. Mor. Hist. The lesser Garden-rue, with narrow Leaves.

3. RUTA *hortensis minor tenuifolia foliis variegatis argenteis*. Boerb. Ind. The lesser Garden-rue, with narrow Leaves, variegated with White.

4. RUTA *Chalepensis latifolia, forum petalis villis scatentibus*. H. L. The broad-leav'd Aleppo Rue, whose Flower-leaves are beset with Down.

5. RUTA *Chalepensis tenuifolia, forum petalis villis scatentibus*. Mor. Hist. Narrow-leav'd Aleppo Rue, whose Flower-leaves are beset with Down.

6. RUTA *sylvestris major*. C. B. P. Greater wild Rue.

7. RUTA *sylvestris minor*. C. B. P. Smaller wild Rue.

8. RUTA *sylvestris linifolia Hispanica*. Bocc. Mus. Spanish wild Rue, with a Flax-leaf.

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The first Sort here mention'd is that which the College of Physicians have directed to be used in Medicine, and is the most commonly cultivated in England.

The second Sort is propagated but in few Gardens in England; tho' the third, which is a Variety of the second, and only differing from it in having its Leaves variegated with White, is very common in England, being greatly cultivated by those Gardeners who supply the London Markets with Plants in the Spring-season; at which time this Plant makes a beautiful Appearance: but as the Season advances, and the Plants increase in Vigour, the Variegation of the Leaves goes off, and they appear almost green; but their Colour returns in Winter.

The two Sorts of Aleppo Rue are only preserv'd in some curious Gardens, being rarely used in Medicine; though of late Years the broad-leav'd Sort was become so plenty, as to be brought to the Markets instead of the first Sort: but being much ranker, and of a more offensive Smell, it was neglected.

The greater wild Rue is less common in England than either of the former. This I raised from Seeds, which were sent me by my honoured Friend Mr. Henry Hopkey, from Gibraltar, where this Plant grows upon the Hills in great Plenty.

The smaller wild Rue is also uncommon: the Leaves of this Sort are small, and neatly set on the Branches, so as to make a very pretty Appearance; but this, and the former Sorts, are tender; so are frequently destroy'd by Cold in the Winter. These two Sorts produced plenty of Seeds in the Physic-garden at Chelsea, which seem'd very perfect; but not one of them came up when sown.

The eighth Sort is also tender, and
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comes from the same Country; therefore these three should be planted in Pots, and shelter'd in Winter from severe Frost; but they must have free Air in mild Weather.

All these Plants may be propagated either by sowing of their Seeds, or by planting Slips or Cuttings; both of which must be done in the Spring. The manner of propagating them from Cuttings being the same with Rosemary, &c. I shall not repeat it here, but refer the Reader to that Article; and if they are propagated by Seeds, there needs no farther Care but to dig a Bed of fresh Earth in the Spring, making it level; then to sow the Seeds thereon, and rake the Ground smooth: after which you must observe to keep the Bed clear from Weeds until the Plants are come up about two Inches high; when they should be transplanted out into fresh Beds, where they may remain for Use. All these Plants must have a dry Soil, otherwise they are very subject to be destroy'd in Winter. The two *Aleppo* Rues, and the wild Rue, are somewhat tenderer than the common Sort; but these will endure our ordinary Winters very well in the open Air, especially if they are planted on a dry Soil.

The first Sort was formerly used to plant for Edgings on the Sides of Borders; it was then called *Herb of Grace*; but was by no means proper for this Use; for the Plants shoot so vigorously, that there is no keeping them within the Bounds of an Edging; besides, when they are kept closely shear'd, they appear very ragged and stumpy; and their Roots spread so far, as to exhaust the Goodness of the Soil, so that the other Plants would be depriv'd of their Nourishment; which Reasons have caus'd them to be wholly neglected for this Purpose; so that at

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present they are chiefly cultivated for medicinal Use, or to furnish the Balconies for the Citizens in the Spring.

RUTA CANINA. *Vide Scrophularia.*

RUTA MURARIA, Wall-rue, or White Maiden-hair.

This Plant is found growing out of the Joints of old Walls in divers Parts of *England*, where it is gather'd for medicinal Use; but as it cannot be cultivated in Gardens, so as to grow to Advantage, I shall not say any thing more of it in this Place.

RUYSCHIANA.

The Characters are;

It hath a labiated Flower consisting of one Leaf, whose Upper-lip (or Crest) is divided into two Parts; but the Beard is cut into three Segments, the middle Segment being divided into two Parts, and is twisted like a Screw: out of the Empalement arises the Pointal, fixed like a Nail in the hinder Part of the Flower, attended by four Embryoes; which afterward become so many Seeds inclosed in the Empalement.

We have but one Species of this Plant; which is,

RUYSCHIANA flore cœruleo magno. Boerb. Ind. alt. Ruyschiana with a large blue Flower.

This Name was given to this Plant by the learned Dr. *Boerhaave*, Professor of Botany at *Leyden*, in Honour to Dr. *Ruysch*, who was Professor of Anatomy and Botany at *Amsterdam*. It was by some Writers in Botany ranged among the Hyssops; by others it was made a Ground-pine; and by some a Self-heal; to neither of which it exactly agreed: which occasion'd Dr. *Boerhaave* to constitute a new Genus of it by this Name.

This is a perennial Plant, which dies to the Root in Autumn, and rises again

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again the following Spring. It commonly grows about two Feet high, and has long narrow Leaves, somewhat resembling those of Rosemary; on the Tops of the Stalk, the Flowers are produced in a close thick Spike, growing in Whorles round the Stalk; which are of a fine blue Colour, and make a very pretty Appearance during their Continuance in Beauty; which in a cool Season is sometimes six Weeks, beginning in May, and lasting till July.

It is propagated by Seed, which should be sown in the Middle of March, in a Bed of fresh light Earth, in an open Exposure; and in about five Weeks after the Plants will appear, when they should be carefully cleared from Weeds; and if the Season should prove dry, they must be refreshed now-and-then with Water, which will greatly promote their Growth. When the Plants are about two Inches high, they should be carefully transplanted into a Bed or Border of fresh light undunged Earth, observing to shade them from the Sun until they have taken Root; as also to refresh them frequently with Water, until they are well establish'd in this Bed; after which time they will require no farther Care, but to keep them constantly clear from Weeds, till Michaelmas, when they are to be removed into the Places where they are designed to remain for good.

When the Plants are first transplanted from the Seed-bed into a Nursery-bed, they should be planted about six Inches asunder every Way, which will be sufficient room for them the first Season; and this will admit of the Hoe to come between the Plants to destroy the Weeds, which is by much a better Method than the pulling them out

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by Hand, and is much sooner perform'd.

At Michaelmas, when the Plants are transplanted for good, they should be carefully taken up with Balls of Earth to their Roots; and they must be planted in the Middle of the Borders in fresh light Earth, intermixing them with other hardy Plants of the same Growth; where they will make a pretty Appearance, when they are in Flower, and will continue three or four Years; and in some poor stony Soils I have known the Roots live six or seven Years; but these did not produce so large Spikes of Flowers, as those younger and more vigorous Plants.

It will be proper to have some of the Plants in Pots, which, in case of a severe Winter, may be shelter'd under a Frame, for fear those Plants which are expos'd should be destroyed; and these Plants in Pots, if they are duly supply'd with Water in dry Weather, will flower very strong; wherefore they may be placed among other Plants, to decorate Courts, &c. where they will have a good Effect.

But as these Plants do not continue many Years, it will be proper to raise a Supply of young Plants to succeed them; for the old Plants will produce Seeds plentifully, which are ripe in August, when they should be gather'd in dry Weather, and kept in a warm dry Room, till the time for sowing them.



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SABINA, The Savine-tree.

The Characters are;

It hath compact, rigid, and prickly ever-green Leaves: the Fruit is small,

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small, spherical, and warted; and the whole Plant has a very rank strong Smell.

The Species are;

1. *SABINA folio tamarisci Dioscoridis.* C. B. P. The Male or common Savine.

2. *SABINA folio cupressi.* C. B. P. The berry-bearing, or upright Savine.

3. *SABINA folio variegato.* The striped Savine.

These Plants are commonly cultivated for medicinal Use, and are rarely planted in Gardens for Pleasure, because their ill Scent renders them disagreeable in frequented Places; but yet they may be admitted for planting in Clumps, or to form Amphitheatres of ever-green Trees; where, if these are intermix'd among other low growing Plants, they will add to the Variety.

These Plants may be propagated by laying down their young Branches in the Spring; which, if duly watered in dry Weather, will take Root in a Year's time, and may then be transplanted out either into a Nursery, or the Places where they are to remain: they may also be propagated by Cuttings, which should be planted on a moist Soil about the Beginning of *October*; which, if duly water'd in dry Weather, will take Root, and the Autumn following may be removed, as was directed for the Layers.

The time for transplanting these Plants is the same with Laurels, *Laurus Tinus*, &c. observing to do it in moist Weather, laying a little Mulch upon the Surface of the Ground about their Roots, to prevent their drying: after they are rooted, they will require no farther Care but to keep them clear from Weeds, and to dig the Ground about

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their Roots every Spring, which will greatly promote their Growth.

These Plants are usually ranged with the Junipers; to which Genus they properly belong by their Characters; but as they have been long known by the Title of Savine in the Shops, I have continued this Name to them.

The first Sort seldom produces Berries in this Country, nor in many other Places; which has occasion'd many Persons to give it the Epithet of Male, and to the upright Sort that of Female, from its bearing plenty of Berries; and from hence some have supposed them to be but one Species; but they are certainly two distinct Plants; for they totally differ in the manner of their Growth, as also in their Leaves. I have sometimes found Berries on the first Sort; but these are produc'd sparingly, and never but on old Plants.

The first seldom rises above three or four Feet high; the Branches spread horizontally to a great Distance from the Stem; so these Plants are very proper to plant for covering of Rocks, or to hang over Water, where the dark Green of the Leaves will have a very good Effect; and being extremely hardy, is another Recommendation: for in the severe Frost in the Year 1739-40. when there were few Plants escap'd, these retain'd their Verdure, and were not injur'd.

The other Sort grows more erect, and will rise to the Height of ten or twelve Feet. The Leaves of this resemble those of the *Virginian Cedar*, and have the same rank Scent as the common Savine; but this is not common in *England* at present: however, it deserves to be propagated, as it makes a Variety among other ever-green Shrubs.

SAFFRON.

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SAFFRON. *Vide Crocus.*

SAGE. *Vide Salvia.*

SALICARIA, Willow-wort, or Spiked Loose-strife.

The Characters are;

The Flowers consist of several Leaves, which are placed circularly, and expand in form of a Rose: these Leaves are produced from the Incisures of the Flower-cup: from the Centre of the Flower-cup rises the Pointal, which afterward becomes a Fruit, or oval Husk, consisting of two Cells, and generally full of small Seeds, which adhere to the Placenta, and are commonly wrapped up in the Flower-cup.

The Species are;

1. SALICARIA *vulgaris purpurea, foliis oblongis.* Tourn. Purple spiked Willow-herb, or Loose-strife, with long Leaves.

2. SALICARIA *purpurea, foliis subrotundis.* Tourn. Purple spiked Willow-herb, or Loose-strife, with roundish Leaves.

3. SALICARIA *hyssopi folio latiore.* Inst. R. H. Broad hyssop-leav'd Willow-wort, or Hedge-hyssop.

4. SALICARIA *hyssopi folio angustiore.* Inst. R. H. Narrow hyssop-leav'd Willow-wort, or Grass-poly.

5. SALICARIA *Lusitanica, angustiore folio.* Inst. R. H. Portugal Willow-wort, with a narrow Leaf.

6. SALICARIA *Hispanica, hyssopi folio, floribus oblongis, saturate cæruleis.* Inst. R. H. Spanish Willow-wort, with an Hyssop-leaf, and oblong deep-blue Flowers.

7. SALICARIA *minima Lusitanica, nummulariæ folio.* Inst. R. H. The least Portugal Willow-wort, with a Moneywort-leaf.

8. SALICARIA *Orientalis, salicis folio acutissimo & glabro.* Tourn. Cor. Eastern Willow-wort, with a sharp-pointed smooth Willow-leaf.

9. SALICARIA *Cretica, puniceæ fo-*

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lio. Tourn. Cor. Candy Willow-wort, with a Pomgranate-leaf.

The two Sorts first-mention'd are very common by the Sides of Ditches, and other moist Places, in divers Parts of England, and are rarely cultivated in Gardens: yet, for the Beauty of their long Spikes of purple Flowers, they deserve a Place in a good Garden, as also for their long Continuance in Flower: however, if there happens to be a moist boggy Place in a Garden, where few other Plants will thrive, these may be placed there to Advantage, and will afford a great deal of Pleasure. They propagate themselves very fast by their creeping Roots; and if they delight in the Soil, will in a short time multiply exceedingly. These produce their Flowers in June and July, and often continue till August in Beauty.

The two next Sorts are found wild in England, on moist Soils, where the Water stands in Winter; but they are pretty rare near London. These are seldom preserved in Gardens, but are here mentioned to introduce the next Sort, which is a very beautiful Plant, and deserves a Place in every curious Garden, for its long Continuance in Flower. This Sort is a Native of Portugal; but is a tolerable hardy Plant, and will endure the Cold of our ordinary Winters in the open Air; but in very severe Frost, is sometimes destroyed; so that some Plants of this Kind may be planted in Pots, which may be shelter'd under a common Frame in Winter, where they should have as much free Air as possible in mild Weather; for they only require to be protected from very hard Frosts. In Summer they may be placed abroad with other flowering Plants; but in dry Weather they must be duly watered.

watered, otherwise they will not flower strong, nor continue so long in Beauty. These Flowers are produced from the Wings of the Leaves, beginning at the Bottom of the Stalks near the Root, and are continued all the Way up to the Top of the Stalks, which are about two Feet in Length; for this Sort seldom rises any higher: the Flowers are pretty large, and of a bright purple Colour. This Plant begins to flower the Beginning of *June*, and continues till *August*.

As this Sort very rarely produces ripe Seeds in *England*, it must be propagated by parting of the Roots, or by laying down the Branches, which will take Root in a few Months (provided they are constantly watered in dry Weather); and may then be taken from the old Plants, and planted into Pots, that they may be shelter'd in Winter; and the Spring following, some of them may be shaken out of the Pots, and planted into a Border, where they may have the morning Sun; and in dry Weather, if they are watered constantly, they will flower very well, and make a fine Appearance.

The sixth Sort is also a very beautiful Plant, and well deserves a Place in every good Garden. This grows about the same Height with the former; so may be interspers'd with it in the Borders of the Flower-garden; as may also the seventh and eighth Sorts, for Variety, tho' they are not near so beautiful as either of the former Sorts. These may be treated in the same manner as hath been directed for the fifth Sort; with which Management they will thrive very well.

The eighth Sort grows much taller than either of the other; so should be plac'd amongst larger Plants. This

is very hardy, and may be propagated either by Seeds, or by parting of the Roots, which is the surest way; because the Seeds do not ripen every Year in this Climate. The best time to part the Roots is in Autumn, that they may be well fixed in the Ground before the Spring; because those which are parted in the Spring, seldom flower very strong, especially if the Season proves dry. This Sort may be intermix'd with the two large Kinds first-mention'd, and will grow in almost any Situation, provided they are watered in dry Weather.

SALICORNIA, Jointed Glasswort, or Saltwort.

The Characters are;

It hath an apetalous Flower, wanting the Empalement; for the Stamina (or Chives), and the Embryoes, grow on the extreme Part of the Leaves: these Embryoes afterward become Pods or Bladders, which for the most part contain one Seed.

The Species are;

1. *SALICORNIA geniculata semper-virens. Tourn. Cor.* Jointed evergreen Glasswort.

2. *SALICORNIA geniculata annua. Tourn. Cor.* Annual Jointed Glasswort.

These Plants grow on the Seacoast in many Parts of *Europe*, and upon the Shores in several Places in *England*, which are washed every Tide with the Salt-water; but are rarely planted in Gardens, because it is very difficult to make them grow in any other Situation, than in Salt-marshes, and on the Shores, where the Salt-water frequently flows. Of these Plants there seem to be two or three Varieties, which appear remarkably different; but are not supposed to be distinct Species.

The Inhabitants near the Seacoast, where these Plants grow, cut them

them up toward the Latter-end of Summer, when they are fully grown; and after having dried them in the Sun, they burn them for their Ashes, which are used in making of Glafs and Soap. These Herbs are, by the Country-people, call'd Kelp; and are promiscuously gather'd for Use.

From the Ashes of these Plants is extract'd the Salt, called *Sal Kali*, or *Alkali*, which is much used by the Chemists.

The manner of gathering and burning of these Herbs is already mention'd under the Article of *Kali*; so I shall not repeat it in this Place.

In some Parts of England these Herbs are gather'd and pickled for Samphire, though it is very different from either of these.

SALIX, 'The Sallow, or Willow-tree.

The Characters are;

It hath amentaceous Flowers, consisting of several Stamina, which are collected into a Spike, but are barren: the Embryoes are produced upon different Trees from the Male Flowers, and after-ward become a Fruit or Husk, shaped like a Cone, opening in two Parts, and containing downy Seeds.

The Species are;

1. *SALIX vulgaris alba arbore-scent.* C. B. P. The common white Willow.

2. *SALIX folio laureo, seu lato glabro odorato.* Phyt. Brit. The bay-leav'd sweet Willow.

3. *SALIX folio longo utrinque virgato odorato.* The long-leav'd sweet Willow.

4. *SALIX folio longo latoque splendente, fragilis.* Raii Syn. The Crack Willow.

5. *SALIX folio amygdalino, utrinque aurito, corticem abjiciens.* Raii Syn. The almond-leav'd Willow, that casts its Bark.

6. *SALIX folio auriculato splendente, flexilis.* Cat. Cant. The round-ear'd shining Willow.

7. *SALIX folio longo subluteo, non auriculato, viminibus luteis.* Raii Syn. The long-leav'd yellowish Willow.

8. *SALIX latifolia rotunda.* C. B. P. Round-leav'd Sallow.

9. *SALIX latifolia rotunda variegata.* The striped Sallow.

10. *SALIX latifolia, folio splendente.* Raii Syn. Broad shining-leav'd Sallow.

11. *SALIX Orientalis, flagellis dorsum pulchre pendentibus.* T. Cor. The weeping Willow.

12. *SALIX caprea, acuto longoque folio.* Raii Syn. Mountain Willow, with a long-pointed Leaf.

13. *SALIX minime fragilis, foliis longissimis utrinque viridibus non serratis.* Raii Syn. Smooth long green-leav'd Willow.

14. *SALIX folio longissimo.* Cat. Cant. The Osier.

15. *SALIX humilior, foliis angustis subcæruleis ex adverso binis.* Raii Syn. The yellow dwarf Willow.

16. *SALIX Alpina, alni rotundo folio, repens.* Bocc. Mus. Mountain creeping Willow, with a round Alder-leaf.

There are a greater Number of Species to be found in England than are here mention'd, especially of the Sallows, as I have been inform'd by a very judicious Basket-maker: there are at least thirty Sorts, which they distinguish by Name, commonly in Use in their Trade; and besides these, there are a great Number of mountain Willows, which grow upon dry Grounds, and are cultivated as Under-wood, in many Parts of England.

The first Sort here mention'd is the common white Willow, which grows to the largest Size of all the Sorts. The Shoots of this are brittle,

tle, so are not fit for the Basket-makers or Gardeners; but the Wood of this Tree was much esteem'd by the Shoemakers for Heels of Shoes, being a light smooth Wood: so that this Sort is only proper for such Plantations as are designed to grow tall, either for Shade or Shelter; therefore is generally planted in low marshy Lands, for that Purpose.

The second Sort shoots very strong, but is not inclinable to grow to a large Size; so is chiefly planted for the Use of Basket-makers; the Twigs of this being pliable. The Leaves of this are as large as those of the Bay-tree, and have an agreeable Scent; for which Reason many People plant this in the low wet Parts of Plantations, where better Things will not thrive.

The third Sort hath also an agreeable Scent; so is by many preserved in their Gardens and Plantations. The Twigs of this are pliable, which renders them fit for the Basket-makers and Gardeners.

The fourth Sort is brittle, so unfit for Use. This grows to be a large Tree; therefore may be planted for Shade and Shelter.

The fifth, sixth, seventh, thirteenth, fourteenth, and fifteenth Sorts have pliable Twigs; so are planted in the Osier-grounds for the Basket-makers; but the thirteenth Sort is esteem'd the best. The Twigs of this may be twisted about like Thread, being exceeding tough and pliable; therefore these are the best Sort for the Gardeners Use, and particularly for fastening of Fruit-trees to the Espalier; so that where there is Room and Conveniency, a few of these should be planted, because they are very useful in a Garden.

The eleventh Sort is not a Native of this Country; but has been introduced of late Years from the Le-

vant, where it is a Native. The Branches of this Sort are very slender, and always hang downward; which occasion'd this Title of weeping Willow. This is very proper to plant at the Termination of Water, where the Head is design'd to be hid, and the Sight deceiv'd, by the Water being lost under the Boughs of the Willow.

The eighth, ninth, and twelfth Sorts are frequently planted in Coppices, for Underwood; and are often cut for Hoops, as also for making Hurdle-fences about Fields. These Sorts grow upon dry chalky Lands, where few other Kinds will thrive.

The ninth Sort is only a Variety of the eighth, having variegated Leaves, which in the Spring make a pretty Appearance; so is preserv'd in the Gardens of those who are curious in having Plants with variegated Leaves.

The sixteenth Sort is of very humble Growth, seldom rising to be one Foot high. The Roots of this Kind creep in the Ground; so it propagates very fast in a cold moist Situation. This grows plentifully in the mountainous Parts of *Wales* and *Cumberland*, as also upon the *Alps*; and I have also received it from *Davis's Straights*; so that I believe it is common in most cold Countries: but it is difficult to get this to thrive in the South; for where some curious Persons have procur'd Plants of it from the Places of its Growth, they have not been able to keep it many Years; for it delights to grow upon Moors and Swamps, where the Soil is of a peaty Nature. But as this Plant is of no Use or Beauty, it is rarely preserv'd in Gardens.

There are several of the Sorts which are planted in the Osier-grounds, and always kept low, that
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when they are not cut down, and have room to grow, will rise to a considerable Height, and become large Trees: so that they may be planted for the same Purposes as the first Sort, and will make a Variety when intermix'd with it; though they are commonly cultivated for their Twigs, which are annually cut, and produce good Profit to the Owner of the Land.

All the Sorts of Willows may be easily propagated by planting Cuttings or Sets in the Spring, which readily take Root, and are of quick Growth. Those Sorts which grow to be large Trees, and are cultivated for their Timber, are generally planted from Sets, which are about seven or eight Feet long: these are sharpen'd at their larger End, and thrust into the Ground by the Sides of Ditches and Banks, where the Ground is moist; in which Places they make a considerable Progress, and are a great Improvement to such Estates; because their Tops will be fit to lop every fifth or sixth Year. The larger Wood, if sound, is commonly sold for making wooden Heels or Soles for Shoes; as also to the Turners, for many Kinds of light Ware.

The Sallows are commonly planted in Cuttings made from strong Shoots of the former Year, and are about three Feet long: these are commonly thrust down two Feet deep into the Ground, and are one Foot above it. The Soil should always be dug or plow'd before they are planted, and the Cuttings plac'd about three Feet Row from Row, and eighteen Inches asunder in the Rows; observing always to place the Rows the sloping Way of the Ground (specially if the Tides overflow the Place); because if the Rows are plac'd the contrary Ways,

all the Filth and Weeds will be detain'd by the Plants, which will choak them up.

The best Season for planting these Cuttings is in *February*; for if they are planted sooner, they are apt to peel, if it proves hard Frost; which greatly injures them. These Plants are always cut every Year; and if the Soil be good, they will produce a great Crop; so that the yearly Produce of one Acre has been often fold for fifteen Pounds; but ten Pounds is a common Price, which is much better than Corn-land; so that it is great Pity these Plants are not more cultivated, especially upon moist boggy Soils, upon which few other Things will thrive.

SALVIA, Sage.

The Characters are;

It hath a labiated Flower, consisting of one Leaf, whose Upper-lip is sometimes arched, and sometimes hooked; but the Under-lip, or Beard, is divided into three Parts, bunching out, and not hollowed, as the Clary: out of the Flower-cup rises the Pointal, attended, as it were, by four Embryoes, which afterward become so many Seeds, which are roundish, shut up in an Husk, which was before the Flower-cup: to which may be added, That the Stamina somewhat resemble the Os Hyoidis.

The Species are;

1. SALVIA major, an Sphacelus Theophrasti. C. B. P. The greater or common Sage.

2. SALVIA nigra. C. B. P. Common red Sage.

3. SALVIA major, foliis ex viridi & albo variegatis. Boerb. Ind. The greater Sage, with Leaves variegated with White and Green.

4. SALVIA foliis versicoloribus. C. B. P. Party-colour'd Sage.

5. SALVIA latifolia serrata. C. B. P. The Broad-leav'd notch'd Sage.

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6. *SALVIA latifolia ferrata, foliis ex albo variegatis.* Broad-leav'd Sage, with variegated Leaves.

7. *SALVIA absinthium redolens.* J. B. Wormwood Sage.

8. *SALVIA minor aurita, & non aurita.* C. B. P. Sage of Virtue.

9. *SALVIA minor, foliis variegatis.* H. R. Par. Sage of Virtue, with striped Leaves.

10. *SALVIA Orientalis latifolia absinthium redolens, flore carneo magno.* Boerb. Broad-leav'd Eastern Sage, smelling like Wormwood, with a large flesh-colour'd Flower.

11. *SALVIA Orientalis latifolia hirsutissima viscosa pinnata, flore & calyce purpureis, inodora.* Boerb. Ind. Eastern Sage, with broad hairy clammy wing'd Leaves, with a purple Flower and Flower-cup, without Smell.

12. *SALVIA Africana frutescens, folio scorodoniae, flore violaceo.* H. A. Shrubby African Sage, with a Wood-sage-leaf, and a violet-colour'd Flower.

13. *SALVIA Africana frutescens, folio subrotundo glauco, flore aureo magno.* H. A. Shrubby African Sage, with roundish sea-green Leaves, and a large golden Flower.

14. *SALVIA Orientalis absinthium redolens, foliis pinnatis, flore carneo, elatior.* Sher. Eastern upright Wormwood Sage, with wing'd Leaves, and a flesh-colour'd Flower.

15. *SALVIA Hispanica, folio lavendulae.* Tourn. Spanish Sage, with a Lavender-leaf.

There are several other Species, or at least Varieties, of this Plant, which are preserved in some curious Botanic Gardens abroad; but those here mentioned are what I have observed in the *English* Gardens.

The first Sort, tho' the most common in many Parts of *Europe*, yet is but rarely to be seen in the *Eng-*

lish Gardens; but the red Sort is most commonly cultivated in this Country, which many Persons suppose to be only a Variety of the common Sort; but it constantly preserves its Difference when raised from Seeds, as I have two or three times experimented; so that I don't scruple to make it a distinct Species, since its Difference from the common is much greater than in some of the other Sorts of Sage, particularly the Sage of Virtue, and the Lavender-leav'd Sage; both which, when cultivated in a good Soil, are so nearly alike, as not to be distinguish'd by the best Botanists. This red Sage, the Wormwood Sage, and Sage of Virtue, are the principal Sorts cultivated for Use in *England*; tho' the Broad-leav'd Sage is much preferable to the Sage of Virtue for Tea, it giving the Water a much more grateful Flavour, and is esteemed to be of a less drying Quality; so that most Persons, who are Lovers of Sage-tea, prefer this for that Purpose.

All the Sorts of Sage, except the eleventh Sort, which is but annual, may be propagated by planting Cuttings or Slips, during any of the Summer-months, observing to water and shade them until they have taken Root; after which they may be taken up, and planted where they are designed to remain, which should always be upon a dry Soil, and where they may have the Benefit of the Sun; for if they are planted on a moist Soil, or in a shady Situation, they are very subject to be destroyed in Winter; nor will these Plants endure the Cold so well, when planted upon a rich Soil, as those which have a barren, dry, rocky Soil, which is the Case of most of the verticillate Plants. The Side shoots and Tops of these Plants may be gathered in the Summer, and dried, if designed for Tea; other-

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otherwise they are best taken green from the Plants for most other Uses.

The twelfth, thirteenth, and fourteenth Sorts are somewhat tender; therefore these must be planted into Pots filled with fresh light sandy Earth; and in Winter must be removed into the Conservatory, where they should be placed as near the Windows as possible, that they may have a great Share of fresh Air whenever the Season is mild; for if they are too much drawn, they seldom flower well, and make but an indifferent Appearance: in Summer they must be exposed amongst other Exotic Plants in some well-sheltered Situation; for they are pretty hardy, and only require to be sheltered from the Frost, and strong Winds. These Plants must be often refreshed with Water, especially in warm Weather, otherwise they will shrivel and decay; and they should be transplanted at least twice every Summer, because their Roots will greatly increase; which, if confin'd in the Pots too long, will turn mouldy, and decay. The other Oriental Sorts are hardy enough to endure the Cold of our ordinary Winters in the open Air, provided they are planted in a dry Soil, and a warm Situation.

These Plants may also be propagated by sowing their Seeds in the Spring upon a Bed of fresh Earth, observing to keep the Ground clear from Weeds until the Plants are come up; when they should be transplanted into Beds of fresh Earth, and treated as those raised from Cuttings or Slips.

SALVIA AGRESTIS. *Vide Scordium.*

SAMBUCUS, The Elder-tree.

The Characters are;

The Branches are full of Pith, having but little Wood: the Flowers are monopetalous, divided into several

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Segments, and expand in form of a Rose: these are, for the most part, collected into an Umbel, and are succeeded by soft succulent Berries, having three Seeds in each.

The Species are;

1. **SAMBUCUS fructu in umbella nigro.** C. B. P. Common Elder, with black Berries.

2. **SAMBUCUS fructu in umbella viridi.** C. B. P. Common Elder, with greenish Berries.

3. **SAMBUCUS fructu albo.** Lob. The white-berried Elder.

4. **SAMBUCUS racemosa rubra.** C. B. P. The mountain red-berried Elder.

5. **SAMBUCUS latiniato folio.** C. B. P. The Cut or Parsley-leav'd Elder.

6. **SAMBUCUS vulgaris, foliis ex luteo variegatis.** The blotch'd-leav'd Elder.

7. **SAMBUCUS humilis, sive Ebulus.** C. B. P. Dwarf Elder, or Danewort.

The first of these Trees is very common in the Hedges in most Parts of England; but the second and third Sorts are more rare: these are propagated for the sake of their Berries, which are by some Persons used for making Wine, and for other Purposes. The fourth Sort is less common in England than either of the former, it being only to be found in some curious Gardens at present. The fifth and sixth Sorts are preserv'd for the Variety of their Leaves, by such as are curious in collecting the various Kinds of Trees and Shrubs.

All these Sorts may be easily propagated from Cuttings, or by sowing their Seeds; but the former, being the most expeditious Method, is generally practis'd. The Time for planting of their Cuttings is from September to March; in the doing of which, there needs no more Care than

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than to thrust the Cuttings about six or eight Inches into the Ground, and they will take Root fast enough, and may afterward be transplanted where they are to remain, which may be upon almost any Soil or Situation: they are extreme hardy; and if their Seeds are permitted to fall upon the Ground, they will produce Plenty of Plants the succeeding Summer.

These Trees are often planted for making Fences, because of their quick Growth; but as their Bottoms become naked in a few Years, they are not so proper for that Use: neither would I recommend them to be planted near Habitations; because at the Season when they are in Flower, they emit such a strong Scent, as will occasion violent Pains in the Heads of those who abide long near them: besides, the crude Parts which are continually perspired thro' their Leaves, are accounted unwholsome; tho' the Leaves, Bark, and other Parts, are greatly esteemed for many Uses in Medicine.

The Dwarf Elder is found wild in some Counties of England; but near London it is propagated in Gardens for medicinal Use; tho' very often the Herb-women in the Markets give the tender Shoots of the Elder-tree instead of this, to such Persons as can't distinguish them asunder.

This Plant multiplies exceeding fast by its creeping Root, which, if permitted to run, will soon overspread a large Spot of Ground: the Off-sets of these Roots may be transplanted any time from September to March, and will grow in any Soil or Situation; but should be allowed room to spread; for if they are planted near other Plants, they will overrun and destroy them.

SAMOLUS, Round-leav'd Water Pimpernel.

The Characters are;

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It hath a wheel-shaped Flower, consisting of one Leaf, which is cut into several Segments: the Pointal arises from the Empalement, and is fixed like a Nail in the Centre of the Flower; which, uniting with the Empalement, is turn'd into a Fruit or Pod, opening at the Top, and inclosing many small Seeds.

We know but one Species of this Plant; which is,

SAMOLUS *Valerandi*. J. B. Round-leav'd Water-pimpernel.

This Plant grows wild in swampy Places, where the Water usually stands in Winter; and is seldom preserved in Gardens: it is an annual Plant, which flowers in June, and the Seeds are ripe in August; at which time, whoever hath a mind to cultivate this Plant, should sow the Seeds on a moist Soil, where the Plants will come up, and require no farther Care, but to keep them clear from Weeds.

SANGUINARIA, Puccoon.

The Characters are;

The Flower is inclosed in a Sheath, composed of two oval concave Leaves, which fall off: the Flower hath eight oblong Petals, which are alternately narrow: these spread open; and in the Centre is situated the Pointal, attended by several short Stamina: the Pointal afterward becomes an oblong swelling Pod, opening both ways, and including many round pointed Seeds.

We have but one Species of this Plant; viz.

SANGUINARIA *minor, flore simplici*. Hort. Elth. The small Puccoon, with a single Flower.

There are some other Varieties of this Plant mentioned in the Eltham Garden; but they are not distinct Species, for they vary annually; therefore it is to no purpose to mention their Variations.

This Plant was formerly ranged in the Genus of *Celandine*, by the
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Title of *Cbelidonium maximum Canadense acaulon*; and this Name of *Sanguinaria* was applied to it by Dr. Dillenius, who was Professor of Botany at Oxford. We have no proper English Name for this; but as the Inhabitants of America call it by the Indian Name Puccoon, I have continued it here.

It is a Native of most of the Northern Parts of America, where it grows plentifully in the Woods; and in the Spring, before the Leaves of the Trees come out, the Surface of the Ground is in many Places covered with the Flowers, which have some Resemblance of our Wood Anemone; but they have short naked Pedicles, each supporting one Flower at the Top: some of these Flowers will have ten or twelve Petals; so that they appear to have a double Range of Leaves, which has occasioned their being termed double Flowers: but this is only accidental, the same Roots, in different Years, producing different Flowers: the Roots of this Plant are tuberous, and the whole Plant has a yellow Juice, which the Indians use to paint themselves.

This Plant is hardy enough to live in the open Air in England; but it should be planted in a loose Soil, and a sheltered Situation, but not too much exposed to the Sun: it is propagated by the Roots, which may be taken up and parted every other Year: the best time for doing of this is in September, that the Roots may have time to send out Fibres before the hard Frost sets in. The Flowers of this Plant appear in April; and when they decay, the green Leaves come out, which will continue till Midsummer; then they decay, and the Roots remain unactive till the following Autumn: so that unless the Roots are marked,

it will be pretty difficult to find them, after their Leaves decay; for they are of a dirty-brown Colour on the Outside; so are not easily distinguished from the Earth.

This Plant is very proper to mix with the Dogs-tooth Violet, Spring Cyclamen, Persian Iris, Bulbocodium, Sisyrinchium, and some other low-growing bulbous and tuberous-rooted Flowers, which require the same Culture; where these will add to the Variety when they are in Beauty: for when the Roots are strong, and grow in a good Soil, they will produce a great Number of Flowers upon each Root: the Roots may be planted about four or five Inches asunder every Way.

SANGUISORBA, Burnet, called by the French Pimpernel.

The Characters are;

The Empalement of the Flower consists of two Leaves, which fall away: the Flower is of one Leaf, divided into four Parts, which are joined at the Bottom: the quadrangular Pointal, which is situated in the Centre, becomes a small Capsule, opening both Ways, and inclosing small Seeds.

The Species are;

1. SANGUISORBA minor. C. B. P. Common Burnet, or Pimpernel.

2. SANGUISORBA major pratensis. Rupp. Flor. Great Meadow Burnet.

3. SANGUISORBA Canadensis, flore albo spicato. Rupp. Flor. Canada Burnet, with a white spiked Flower.

4. SANGUISORBA major, foliis auriculatis glabris. Great Burnet, with smooth-ear'd Leaves.

5. SANGUISORBA hirsuta, agrimonie foliis. Hairy Burnet, with Leaves like Agrimony.

6. SANGUISORBA spinosa, caule fruticoso. Prickly Burnet, with a woody Stalk.

7. SANGUISORBA major Hispanica, conglomerato flore. Great Spanish Burnet,

Burnet, with Flowers growing in a close Head.

8. *SANGUISOREA minor, semine majore & crassiore*. Small Burnet, with a larger and thicker Seed.

This Genus of Plants has been by some old Writers titled *Sanguisorba*, by others *Pimpinella*; and by some both Titles have been applied to it: but Dr. *Linnaeus* has divided the Species of this Genus, to some of which he applies this Name of *Sanguisorba*, and to the others *Poterium*: the first Genus he places in his Class of *Tetrandria*, as they have but four *Stamina* in their Flowers: the other he places in his Class of *Monoeccia Polyandria*, these having Male and Female Flowers in the same Spike; and the Flowers have many *Stamina*: so, by his Method, these two Genera are separated to a great Distance: but as these Species have been always brought under one Genus before his time, I choose to continue them together.

The first Sort grows wild in many Parts of *England*, particularly upon chalky Land, where it grows so small, as to appear different from what it does when transplanted into Gardens. This is the Sort which is directed by the College for medicinal Use; and it has been used as a cooling Herb in Drinks; but of late Years the People cultivate it for Sallads: the young Leaves in the Spring, being mixed with other small Herbs in Sallads, give a very agreeable Flavour to them.

The second Sort also grows wild in moist Meadows, in some Parts of *England*. The third Sort was brought from the Northern Parts of *America*. The fourth Sort is a Native of the Mountains in *Savoy*. The seventh Sort grows wild in *Spain* and *Portugal*; and the eighth Sort in *Istria* and *Dalmatia*; from whence

I received the Seeds, which were procured for me by my much honoured Friend the Chevalier *Rathgeb*. These are all of them hardy perennial Plants, which will easily rise from the Seeds, if they are sown on a Bed of common Earth in the Spring; and when the Plants are fit to remove, they should be transplanted into Beds: the small Sorts may be planted one Foot asunder, and the large Sorts two Feet: these Roots will abide several Years, and produce plenty of Seeds.

The fifth Sort seldom lasts longer than two Years; so that when the Plants have perfected their Seeds, they soon after perish: therefore whoever is willing to preserve this Species, should annually sow some of the Seeds: this is hardy, and may be propagated in the same manner as the former Sort.

The sixth Sort grows with woody Stalks about three Feet high, which continue several Years; and sends out many irregular Branches, which are furnished with Spines toward their Extremities: this Sort is not so hardy as the former; so should be preserved in Pots, and sheltered from severe Frost in Winter; otherwise the Plants will be destroyed: it may be propagated by Seeds, as the former Sorts, or by Cuttings, which may be planted any time in Summer: and if they are duly watered and shaded, they will soon take Root; and may afterward be planted into Pots.

SANGUIS DRACONIS. Vide Palma.

SANICULA, Sanicle.

The Characters are;

It is an umbelliferous Plant, whose Flower consists of five Leaves placed orbicularly; but are generally bent back to the Centre of the Flower, resting on the Empalement, which becomes

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comes a Fruit compos'd of two Seeds, that are gibbous and prickly on one Side, but plain on the other: some of the Flowers are always barren.

There is but one Species of this Plant at present in England; viz.

SANICULA officinarum. C. B. P. Sanicle, or Self-heal.

This Plant is found wild in Woods, and shady Places, in most Parts of England; but being a medicinal Plant, may be propagated in Gardens for Use: it may be increased by parting of the Roots, any time from September to March; but it is best to do it in Autumn, that the Plants may be well rooted before the dry Weather in Spring comes on: they should have a moist Soil, and a shady Situation, in which they will thrive exceedingly.

SANTOLINA, Lavender-cotton.

The Characters are;

It hath a globose flosculous Flower, consisting of many Florets, divided into several Segments, sitting on the Embryo, contained in the intermediate little Leaves, hollowed like a Gutter, and a squamous hemispherical Empalement: the Embryo afterward becomes a Seed, not at all furnished with Down: to these Notes must be added, Larger Flowers than those of Wormwood and Southernwood, and also the whole Face of the Plant.

The Species are;

1. *SANTOLINA foliis teretibus*. Tourn. Common Lavender-cotton.

2. *SANTOLINA flore majore, foliis villosis & incanis*. Tourn. Lavender-cotton, with a larger Flower, and hoary Leaves.

3. *SANTOLINA foliis erycæ vel sabinae*. Tourn. Green-leav'd Lavender-cotton, with a Scent like Ointment.

4. *SANTOLINA foliis cupressi*.

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Tourn. Cypress-leav'd Lavender-cotton.

5. *SANTOLINA repens & canescens*. Tourn. Creeeping and hoary Lavender-cotton.

6. *SANTOLINA foliis minus incanis*. Tourn. Lavender-cotton with less hoary Leaves.

7. *SANTOLINA foliis obscure virentibus, flore aureo*. Tourn. Lavender-cotton with dark-green Leaves, and a golden Flower.

8. *SANTOLINA foliis rosmarini, major*. Tourn. Greater Lavender-cotton, with Rosmary-leaves.

9. *SANTOLINA vermiculata Cretica*. Tourn. Vermiculated Lavender-cotton of Candy.

The first of these Plants is cultivated in Gardens for medicinal Use; as is the third, for furnishing Balconies, and other little Places in and near the City, by way of Ornament; but the other Sorts are rarely to be found, but in the Gardens of those who are curious in Botanical Studies.

Most of these Plants may be cultivated so as to become Ornaments to a Garden, particularly in small Bosquets of ever-green Shrubs; where, if these are artfully intermix'd with other Plants of the same Growth, and placed in the front Line, they will make an agreeable Variety; especially if care be taken to trim them twice in a Summer, to keep them within Bounds; otherwise their Branches are apt to straggle, and, in wet Weather, to be borne down, and displaced, which renders them unsightly; but when they are kept in Order, their hoary and different-colour'd Leaves will have a pretty Effect in such Plantations.

These Plants may be propagated by planting Slips or Cuttings of any of the Kinds during the Spring, which should be put into a Border of fresh light Earth, and water'd and shaded in

in hot dry Weather, until they have taken Root; after which they will require no farther Care, but to keep them clear from Weeds till Autumn, when they should be carefully taken up, and transplanted where they are designed to remain: but if the Ground is not ready by that time to receive them, it will be proper to let them remain in the Border until Spring; for if they are transplanted late in Autumn, they are liable to be destroyed by a little Cold in Winter.

These Plants are very hardy, and if planted in a lean, gravelly, or sandy dry Soil, will continue many Years, and resist the Cold very well: but if they are in a wet or rich Soil, they are often destroyed in Winter.

SAPINDUS, The Soapberry.

The Characters are;

It hath a Flower, which, for the most part, is composed of four Leaves expanding in form of a Rose: from whose four-leav'd Empalement arises the Pointal, which afterward becomes a spherical Fruit, having a thick oily Cover, inclosing a Nut of the same Form.

We have but one Species of this Plant; which is,

SAPINDUS foliis costæ alatæ innaescentibus. *Inst. R. H.* The Soapberry, or Soap-apple-tree.

This Tree is very common in *Jamaica*, *Barbados*, and most other Places in the *West-Indies*, where it rises to the Height of thirty Feet, or more; but in *Europe* it is preserv'd by those Persons who are curious in cultivating Exotic Plants, for the singular Structure of the Leaves, which are very long and narrow, having Borders on each Side, which, at about every two Inches, have *Pinnæ*, or Wings, opposite to each other, and terminated by an odd one. The Flowers are produc'd at

the Ends of the Branches, which are small and white, growing in Clusters. These are succeeded by spherical brown Berries, about the Size of Cherries, which have very little Pulp; but a brown Skin covering the Nut, which is round, black, and hard. These Nuts were formerly brought into *England* to make Buttons; for which Purpose they were very proper, because they never crack. The Skin which surrounds the Nut, will lather like Soap, and is used in *America* to wash Linen; though many People say it will burn it, when it is often used.

This Plant is propagated by Seeds (which must be obtain'd from the Countries where they naturally grow; for they do not produce Fruit in *Europe*): these must be put into small Pots filled with fresh rich Earth, and plunged into an Hot-bed of Tanners Bark. The Pots must be frequently watered, otherwise the Berries, whose outer Cover is very hard, will not vegetate. In a Month or five Weeks the Plants will begin to appear, when the Glasses of the Hot-bed should be raised every Day in warm Weather, to admit fresh Air to the Plants. In three Weeks or a Month after the Plants appear, they will be fit to transplant; when they must be shaken out of the Pots, and carefully parted, so as not to injure their Roots, and each planted into a separate small Pot filled with light rich Earth, and then plunged into the Hot-bed again; observing to shade them from the Sun every Day, until they have taken new Root; after which time, they must have free Air admitted to them every Day, when the Weather is warm; and will require to be frequently watered.

After the Plants are well rooted, they will make great Progress, so as to fill these Pots with their Roots in

a few Weeks time; therefore they must then be shifted into larger Pots; and as the Plants advance, they should be inured to bear the open Air by degrees; for if they are forc'd too much in Summer, they seldom live through the Winter. I have frequently rais'd these Plants from Seeds, to the Height of two Feet in one Summer; and the Leaves of these Plants have been a Foot and an half in Length, so that they made a fine Appearance: but these Plants did not survive the Winter; whereas those which were expos'd to the open Air in July, and thereby stinted in their Growth, continued their Leaves fresh all the Winter. These were plac'd in a Stove upon Shelves, where the Warmth was very moderate; with which these Plants will thrive better than in a greater Heat.

SAPONARIA. *Vide* Lychnis.

SAPOTA, The Mammee Sapota.

The Characters are;

It hath a rose-shaped Flower, consisting of several Leaves, which are placed in a circular Order; from whose Empalement arises the Pointal, which afterward becomes a large oval soft fleshy Fruit, inclosing an oblong pointed Stone or Fruit, which is finely polished, having a rough Fissure on one of the Edges, of an Ash-colour.

The Species are;

1. SAPOTA *fructu turbinato minori*. Plum. Nov. Gen. Sapota with a lesser Fruit, shaped like a Top.

2. SAPOTA *fructu ovato majori*. Plum. Nov. Gen. Sapota with a larger oval Fruit.

The Name of *Sapota* is what these Fruit are call'd by the Natives of *America*; to which some add the Appellation of Mammee: but there is no other Name given to these Fruits by the *English*, since they have set-

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tled in the *West-Indies*, so far as I can learn.

The first of these Trees is common about *Panama*, and some other Places in the *Spanish West-Indies*; but is not to be found in any of the *English* Settlements in *America*. The second Sort is very common in *Jamaica*, *Barbados*, and most of the Islands in the *West-Indies*, where the Trees are planted in Gardens for their Fruit, which is by many Persons greatly esteemed.

These Trees grow in *America* to the Height of thirty five or forty Feet, having a strait Trunk, covered with an ash-coloured Bark. The Branches are produc'd on every Side, so as to form a regular Head: these are beset with Leaves, which are a Foot in Length, and near three Inches broad. The Flowers, which are produced from the Branches, are of a Cream-colour; when these fall away, they are succeeded by large oval or top shaped Fruit, which are covered with a brownish Skin, under which is a thick Pulp of a Rust-colour, very luscious, call'd *Natural Marmelade*, from its Likeness to Marmelade of Quinces.

As these Trees are Natives of very warm Countries, they cannot be preserv'd in *England*, unless they are plac'd in the warmest Stoves, and manag'd with great Care. They are propagated by planting the Stones; but as these will not keep good long out of the Ground, the surest Method to obtain these Plants is, to have the Stones planted in Tubs of Earth, as soon as they are taken out of the Fruit, and the Tubs placed in a Situation where they may have the morning Sun, and kept duly water'd. When the Plants are come up, they must be secur'd from Vermin, and kept clear from Weeds; but should remain in the Country

till they are about a Foot high, when they may be shipp'd for *England*: but they should be brought over in the Summer-season, and, if possible, time enough for the Plants to make good Roots after they arrive. During their Passage, they must have some Water, while they continue in a warm Climate; but as they come into colder Weather, they should have little Moisture; and they must be secured from salt Water, which will soon destroy the Plants, if it gets at them.

When these Plants arrive in *England*, they should be carefully taken out of the Tubs, preserving some Earth to their Roots, and planted into Pots filled with fresh Earth, and then plunged into a moderate Hot-bed of Tanners Bark; observing, if the Weather is hot, to shade the Glasses with Mats every Day, to screen the Plants from the Sun, until they have taken new Root; observing also, not to water them too much at first, especially if the Earth in which they come over is moist; because too much Water is very injurious to the Plants before they are well rooted; but afterward they must have plenty of Water in warm Weather: and they must have a large Share of Air admitted to them, otherwise their Leaves will be infested with Insects, and become foul; in which case they must be washed with a Sponge, to clean them; without which the Plants will not thrive.

In the Winter these Plants must be plac'd in the warmest Stove; and in cold Weather they should have but little Water given to them, tho' they must be frequently refreshed when the Earth is dry; especially, if they retain their Leaves all the Winter, they will require a greater Share of Water, than when they drop their Leaves: so that this must be

done with Discretion, according to the State in which the Plants are. As these Plants grow in Magnitude, they should be shifted into Pots of a larger Size; but they must not be over-potted; for that will infallibly destroy them.

SARRACENA, The Side-saddle Flower.

The Characters are;

It hath a Flower consisting of several Leaves, which are placed circularly, and expand in form of a Rose, and resting in a many-leav'd Empalement: from the Middle arises the Pointal, which is membranaceous, and shaped like an Hood, and afterward becomes a roundish Fruit divided into five Cells, which contain oblong Seeds.

The Species are;

1. SARRACENA *Canadensis*, *foliis cavis & auritis*. *Inst. R. H. Canady* Sarracena, with hollow eared Leaves.

2. SARRACENA *foliis longioribus & angustioribus*. *Catesb. Hist. Carol.* Long narrow-leav'd Sarracena.

These strange Plants are Natives of *New-England*, *Virginia*, and several Places in *North-America*, where they grow on Bogs, and in such Places where the Waters usually stand in Winter. The Leaves of the first Sort arise from the Root every Spring, being eight or nine in Number; which are small at the Bottom, but swell larger toward the Top, and are hollow like a Pitcher; having a sort of an Appendage at the Top, somewhat resembling a Flap: so that in these Leaves there is commonly a large Quantity of Water contain'd. These are seven or eight Inches in Length: between the Leaves arises the Flower-stem, which is naked; and each of these sustains one purple Flower, growing on the Top, which is succeeded by a roundish Fruit.

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The Leaves of the second Sort grow near three Feet high; being small at the Bottom, but widening gradually to the Top. These are hollow, and are arched over at the Mouth like a Friar's Cowl. The Flowers of this grow on naked Pedicles, rising from the Root to the Height of three Feet: these Flowers are green.

The Name was given to this Plant by Dr. *Tournefort*, in Honour of Dr. *Sarrazin*, a curious Botanist, who sent the Plant from *Canady* to Dr. *Tournefort* at *Paris*.

As these Plants grow on Bogs, it is very difficult to cultivate them in *England*: for altho' the Winters are much more severe in the Places of their natural Growth, than they generally are in *England*; yet their Summers being much warmer, they thrive much better, and produce their Flowers and Fruit annually; whereas it is with great Difficulty they are kept alive for a Year or two in *England*; and they have not yet flowered in this Country, as I could learn. By the Appearance of some Plants, which I receiv'd from *New-England*, which were taken up on the same Spot, the two Sorts grow promiscuously; but whether they are only accidental Varieties, I cannot say.

The only Method to obtain these Plants is, to procure them from the Places of their Growth, and to have them taken up with large Balls of Earth to their Roots, and planted in Tubs of Earth; which must be constantly watered during their Passage, otherwise they will decay before they arrive; and there is little Probability of raising these Plants from Seeds: so that young Plants should be taken up to bring over, which are more likely to stand here, than those which have flower'd two or three times.

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When the Plants are brought over, they should be planted into pretty large Pots; which should be filled with soft spongy Earth, mixed with rotten Wood, Moss, and Turf, which is very like the natural Soil in which they grow. These Pots must be constantly supplied with Water, and placed in a shady Situation in Summer; but in the Winter they must be covered with Moss, or shelter'd under a Frame, otherwise they will not live in this Country; tho' they have much more severe Frost in the Countries where they naturally grow; but there they are covered with Snow, which may be a great Protection to them. With this Management I have kept some of these Plants alive two Years; but they made very little Progrs.

SATUREIA, Savory.

The Characters are;

It is a Plant of the verticillate Kind, with a labiated Flower, whose upper Lip (or Crest) is divided into two Parts; but the lower Lip (or Beard) is divided into three Parts, the middle Part being crenated: these Flowers are produc'd from the Wings of the Leaves, in a loose Order, and not in Whorles or Spikes, as are most of this Tribe of Plants.

The Species are;

1. SATUREIA *sativa*. J. B. Garden or Summer-savory.

2. SATUREIA *montana*. C. B. P. Winter-savory.

3. SATUREIA *Virginiana*. Par. Bat. *Virginian Savory*.

The first of these Plants is annual, and is propagated by sowing the Seeds upon a Bed of fresh light Earth in *March*; and when the Plants are come up, they must be transplanted into other Beds, placing them about four or five Inches asunder each Way; observing to do this in moist cloudy Weather, be-

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cause at such times the Plant will soon take Root: but if the Season should prove hot and dry, they must be diligently watered until they have taken Root; after which they will require no farther Care, but to keep them clear from Weeds; and in July they will flower; at which time they will be fit to cut for medicinal Use: but those Plants which are left uncut will produce ripe Seeds in September, provided the Autumn be favourable.

The Winter-savory is an abiding Plant, and may be propagated by Slips or Cuttings; which, if planted in a Bed of fresh light Earth in the Spring, and carefully watered, will take Root in a short time, and may then be transplanted where they are to remain. There seem to be two Species of this, differing in their manner of Growth, and also in the Size of their Flowers. This Plant should have a dry Soil, in which it will endure the Cold very well, as may be seen by its growing in some Places upon the Tops of Walls, where it defies the severest Cold of our Climate.

These Plants were antiently more cultivated in England than at present, they being very little in Use to what they were formerly, when they enter'd most Dishes of Soups, &c. but at present they are very little used in the Kitchen, being chiefly cultivated for medicinal Use.

SATYRION. *Vide Orchis.*

SAVINE. *Vide Sabina.*

SAVORY. *Vide Satureia.*

SAURURUS, Lizards-tail

The Characters are;

It hath an apetalous Flower, consisting of two Chives, which open two ways, and are full of very small Powder (or Farina): the Embryo rests between two Chives, which afterward becomes an oval Fruit, inclosing a single Seed: to these Notes must be

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added, The Flowers and Fruit are fixed to one Axis, so as to resemble the Tail of a Lizard.

The Species are;

1. SAURURUS *racemosus, seu botryites major.* Plum. Nov. Gen. Greater branching Lizards-tail.

2. SAURURUS *racemosus, seu botryites minor.* Plum. Nov. Gen. Lesser branching Lizards-tail.

3. SAURURUS *cauda adunca.* Plum. Nov. Gen. Lizards-tail with a crooked Tail.

4. SAURURUS *foliis plantagineis, cauda breviori.* Plum. Nov. Gen. Lizards-tail with Plantain-leaves, and a shorter Tail.

5. SAURURUS *botryites major, foliis plantagineis.* Plum. Nov. Gen. Greater cluster'd Lizards-tail, with Plantain-leaves.

6. SAURURUS *foliis amplis rotundis & umbilicatis.* Plum. Nov. Gen. Lizards-tail with large round umbilicated Leaves.

7. SAURURUS *foliis amplis cordatis, non umbilicatis.* Plum. Nov. Gen. Lizards-tail with large heart-shaped Leaves, not umbilicated.

8. SAURURUS *procumbens minor botryites, folio carnosso cordato.* Plum. Nov. Gen. Smaller creeping cluster'd Lizards-tail, with a fleshy heart-shap'd Leaf.

9. SAURURUS *alius humilis, folio carnosso subrotundo.* Plum. Nov. Gen. Low Lizards-tail, with a roundish fleshy Leaf.

10. SAURURUS *repens, folio orbiculari, nummulariæ facie.* Plum. Nov. Gen. Creeping Lizards-tail, with a round Leaf, having the Appearance of Moneywort.

11. SAURURUS *repens triphyllus, folio rotundo.* Plum. Nov. Gen. Creeping three-leav'd Lizards-tail, with a round Leaf.

12. SAURURUS *cauliculis maculosis, repens.* Plum. Nov. Gen. Creeping

ing Lizards-tail, with a spotted Stalk.

13. SAURURUS *frutescens, lauro-cerasi folio, fructu brevioris & crassioris*. Houst. Shrubby Lizards-tail, with a Laurel-leaf, and a shorter and thicker Fruit.

14. SAURURUS *arborescens latifolia villosa, fructu gracili*. Houst. Tree-like Lizards-tail, with a broad hairy Leaf, and a slender Fruit.

The seven Sorts first-mention'd grow to be shrubby, and rise to the Height of four or five Feet, having Leaves plac'd alternately on their Branches. The *Iulus* comes out from the Wings of the Leaves, which is shap'd like a Lizard's Tail; from whence they had their Names. By some they are called long Pepper, from the Resemblance their *Iuli* bear to the long Pepper; but the Fruit of these are not used, nor have they the Taste of Pepper. These Sorts were discover'd to grow in *Jamaica*, by the late Dr. *Houfoun*; and some of them are described by Sir *Hans Sloane*, in his Natural History of that Island.

The eighth, ninth, and tenth Sorts are Plants of humbler Growth; these trail on the Ground, and emit Roots from their Joints, which fasten themselves into the Earth where-ever it is loose; by which Method they spread to a great Distance. The Leaves and Stalks of the ninth Sort are very thick and succulent, and remain always green.

The eleventh and twelfth Sorts are creeping Plants, which fasten themselves to Trees; by which means they rise to the Height of eight or ten Feet, fasten their Roots into the Bark of the Trees, and receive Part of their Nourishment from thence.

All these twelve Sorts were discover'd by Father *Plumier* in the *West-Indies*, who has figur'd and describ'd

them in his History of *American* Plants; but seven of them were before describ'd by Sir *Hans Sloane*, in his Natural History of *Jamaica*.

The two last Sorts were discovered by the late Dr. *Houfoun* at *La Vera Cruz*, from whence he sent Samples of them into *England*. These two Sorts grow much larger than either of those before-mention'd.

Some of these Plants are called, by the Inhabitants of *Jamaica*, Spanish Elder, from their being jointed, and their Branches having a great deal of Pith in them. Others of them, especially those which have Leaves shaped like an Heart, are call'd *Santa Maria* Leaves.

These Plants most of them grow in moist shady Places, in the warmest Parts of *America*; where many of them root into the decayed Trunks of Trees, and rotten Wood (especially those which trail), and thereby they propagate faster than by Seeds; for as they emit Roots at almost every Joint, each of these will make a separate Plant.

But as these Plants are too tender to bear the open Air in this Climate, they must be preserved in a Stove, where the Air may be kept in a moderate Temperature for Heat; and if they are placed in the Bark-bed, and their Branches permitted to trail on the Surface of the Bark, the Plants will send forth Roots at every Joint, and fasten themselves strongly into the Bark; so will thrive exceeding fast, and produce their Flowers and Fruit.

The Seeds of these Plants, when brought from abroad, seldom succeed in *England*; so that the most proper Method to obtain the Plants is, to have some of their Cuttings planted into Boxes of Earth, in the Countries where they naturally grow; and when they are well root-

ed, they may be sent over to *England*, with Directions given to the Persons to whose Care they are intrusted, not to let them have too much Water (especially when they come into a cool Climate); because Moisture then will be very prejudicial to them. They must also be carefully guarded against the Salt-water, which will infallibly destroy them, if it be suffered to come to them. When the Plants arrive in *England*, they should be carefully taken out of the Boxes, and each planted into a separate small Pot filled with fresh light Earth, and then plunged into a moderate Hot-bed of Tanners Bark; observing to shade them from the Sun at first, until they have taken Root; after which time they should have fresh Air admitted to them, in proportion to the Warmth of the Season; but in Winter they must be kept pretty warm, otherwise they will not live in this Country.

The surest Method to make these Plants thrive in *England* is, to plunge the Pots into the Bark in the Stove, and to suffer the Branches of the creeping Kinds to trail on the Surface of the Bed; where they will strike Roots into the Tan, and will thrive exceedingly. These Plants merit a Place in every Collection of Plants, for their remarkable Leaves, and the singular Structure of their Branches; as also for the Oddness of their Flowers and Fruit, which are, for the most part, produc'd from the Wings of the Leaves.

SAXIFRAGA, Saxifrage.

The Characters are;

The Flower consists of several Leaves placed orbicularly, which expand in form of a Rose: out of whose multifid Flower-cup rises the Pointal; which commonly ends in two Horns, and afterward turns, together with

the Flower-cup, into a roundish Fruit, which has likewise two Horns, and two Cells, which are full of small Seeds.

The Species are;

1. SAXIFRAGA *rotundifolia alba*. C. B. P. White round-leav'd Saxifrage.
2. SAXIFRAGA *rotundifolia alba, flore pleno*. Boerb. Ind. White round-leav'd Saxifrage, with a double Flower.
3. SAXIFRAGA *Alpina erycoides, flore cœruleo*. Tourn. Mountain heath-like Sengreen, with a blue Flower.
4. SAXIFRAGA *sedi folio, flore albo, multiflora*. Tourn. Many-flower'd Saxifrage, with an Housleek-leaf, and a white Flower, commonly call'd Pyramidal Sedum.
5. SAXIFRAGA *sedi folio angustiore serrato*. Tourn. Saxifrage with a narrow ferrated Housleek-leaf.
6. SAXIFRAGA *ad folia bulbos gerens*. C. B. P. Saxifrage bearing Bulbs at the Wings of the Leaves.
7. SAXIFRAGA *verna annua humilior*. Inst. R. H. Dwarf Spring annual Saxifrage, commonly call'd Rue-leav'd Whitlow-grafs.
8. SAXIFRAGA *muscosa, trifido folio*. Inst. R. H. Mossy Saxifrage, with a trifid Leaf, commonly call'd Mountain Sengreen, or Ladies Cushion.
9. SAXIFRAGA *tridactylites Alpina, pallide lutea*. Inst. R. H. Mountain Saxifrage, of a pale yellow Colour, with a Leaf cut into three Segments.
10. SAXIFRAGA *tridactylites Alpina minor & villosa*. Inst. R. H. Small hairy Saxifrage of the Alps, with a Leaf cut into three Segments.
11. SAXIFRAGA *alba petræa* Ponæ. Inst. R. H. White Rock Saxifrage.
12. SAXIFRAGA *sedi folio, Pyrenaica*

naica ferrata. Inst. R. H. Pyrenean Saxifrage, with a sawed Housleek-leaf.

13. *SAXIFRAGA foliis subrotundis ferratis. Inst. R. H. Saxifrage with roundish sawed Leaves.*

14. *SAXIFRAGA Alpina, sedi foliis crenatis asperis. Inst. R. H. Saxifrage of the Alps, with rough notched Leaves like Housleek.*

15. *SAXIFRAGA foliis oblongo-rotundis dentatis, floribus compactis. Raii Syn. Ed. 3. Saxifrage with an oblong roundish indented Leaf, and the Flowers growing in close Bunches.*

16. *SAXIFRAGA montana pyramidata, folio longiore. Inst. R. H. Mountain pyramidal Saxifrage, with a long Leaf.*

17. *SAXIFRAGA Pyrenaica lutea minima, sedi foliis densissime congestis. Inst. R. H. The least yellow Pyrenean Saxifrage, with Housleek-leaves growing very close together.*

18. *SAXIFRAGA Alpina minima, foliis caesis, deorsum incurvis. Inst. R. H. The least Saxifrage of the Alps, with sky-colour'd Leaves, which bend downward.*

19. *SAXIFRAGA Alpina lutea, sedi folio. Inst. R. H. Yellow Saxifrage of the Alps, with an Housleek leaf.*

20. *SAXIFRAGA Pyrenaica tridactylites latifolia. Inst. R. H. Pyrenean Saxifrage, with broad Leaves cut into three Segments.*

21. *SAXIFRAGA Cantabrica latifolia tridactylites rigidior. Inst. R. H. Broad stiff-leav'd Saxifrage of Biscay, with Leaves cut into three Segments.*

22. *SAXIFRAGA tridactylites Pyrenaica, pallide lutea, minima. Inst. R. H. The least pale-yellow Saxifrage of the Pyrenees, with Leaves cut into three Segments.*

23. *SAXIFRAGA Pyrenaica, foliis partim integris, partim trifidis. Inst. R. H. Pyrenean Saxifrage, with*

Leaves partly intire, and partly cut into three Segments.

24. *SAXIFRAGA Pyrenaica minima lutea, musco similis. Inst. R. H. The least yellow Saxifrage of the Pyrenean Mountains, resembling Moss.*

25. *SAXIFRAGA annua Cretica minima,hederaceo folio. Fourn. Cor. The least annual Saxifrage of Candia, with an Ivy-leaf.*

26. *SAXIFRAGA Pensylvanica, floribus muscosis. Hort. Eltb. Saxifrage of Pensylvania, with greenish Flowers, growing branchy.*

The first of these Plants is very common in moist Meadows in divers Parts of England, and is rarely cultivated in Gardens. This is what the College of Physicians have directed to be used in Medicine, under the Title of *White Saxifrage*, to distinguish it from *Meadow Saxifrage*; which is an umbelliferous Plant, of a very different Nature and Appearance from this.

The second Sort is a Variety of the first, which was found wild by Mr. *Joseph Blind*, Gardener at *Barns*, who transplanted it into his Garden, and afterward distributed it to several curious Persons; since which time it hath been multiply'd so much, as to become a very common Plant in most Gardens near *London*; where it is commonly planted in Pots, to adorn Court-yards, &c. in the Spring.

This Plant is propagated by Offsets, which are sent forth from the old Roots in great Plenty. The best Season for transplanting them is in *July*, after their Leaves are decay'd; when they must be put into fresh undung'd Earth, and plac'd in the Shade until Autumn: but in Winter they must be expos'd to the Sun, which will cause them to flower somewhat earlier in the Spring. In *April* these Plants will flower; and if they are in large Tufts, will at

that time make a very handsome Appearance; for which Reason most People suffer them to remain three or four Years unremov'd, and when they are transplanted, always plant them in Bunches, that they may produce a greater Number of Flowers. If these Plants are put into the full Ground, they must have a shady Situation; otherwise they will not thrive.

The third Sort is a low creeping Plant, which lies upon the Surface of the Ground, somewhat like Moss: this grows wild in the Northern Counties of *England*; and is rarely cultivated in Gardens; tho' it deserves a Place better than many other Plants, which are treated with great Care; for in the Month of *March* the whole Plant is covered with fine blue Flowers, which make a beautiful Appearance on the Surface of the Ground. This Sort multiplies very fast, by its trailing Branches, which put out Roots at their Joints, and may be parted at *Michaelmas*, which is the proper Season to remove the Plants. This Plant must have a shady Situation, and should be duly watered in dry Weather; otherwise it will not thrive.

The fourth Sort is propagated for the sake of its specious Flowers: this is brought from the *Alps*, and *Pyrenean* Mountains, where it grows wild. It is usually planted in Pots filled with fresh light Earth, and in the Summer season placed in the Shade; but in the Winter it should be exposed to the Sun; and all the Off-sets should be taken off, leaving the Plant single, which will cause it to produce a much stronger Stem for flowering: for when there are Off-sets about the old Plant, they exhaust the Nourishment from it, whereby it is rendered much weaker. These Off-sets must be each planted in a

separate Halfpeny Pot filled with fresh Earth, in order to succeed the older Plants, which generally perish after flowering: these Off-sets will produce Flowers the second Year; so that there should be annually some of them planted, to succeed the others. When these Plants are strong and healthy, they will produce a Stem of Flowers full three Feet high, which divides into Branches in a pyramidal Order, and are beset with Flowers from Bottom to Top, so as to make a beautiful Figure: and as it usually flowers in *June*, it is commonly placed in Chimneys of Halls, where it will continue in Flower a long time, provided it have Water duly given it; and will afford an agreeable Prospect.

The fifth Sort is also a Native of the *Alps*, but will grow very well in Gardens: and tho' the Flowers are not very beautiful; yet, for the Variety of its serrated ever-green Leaves, it may have a Place in every good Garden. This may be propagated by Off-sets, and requires the same Management as the former.

The sixth Sort is a Variety of the common white Saxifrage, from which it differs in bearing small Bulbs at the Leaves. This is not common in *England*; but is found wild on the *Pyrenean* Mountains, and in other moist Places in *Spain* and *Italy*; and propagates very fast by the Bulbs, which grow on the Stalks in the same manner as the fry Lily.

The seventh Sort is a low annual Plant, which usually grows on the Tops of Walls, and on dry rubbishy Places, and flowers in *April*. This Plant has been esteemed a very good Remedy for the King's-evil, and other scrophulous Disorders. Mr. *Boyle*, in his Treatise concerning the Usefulness of Natural Philosophy, has recommended this Herb to be infused

infused in small Beer, and drank for some Days; which he says will cure the King's-evil, without any sensible Exacuation, by consuming the Humour, mitigating the Pain, discussing the Tumours, and drying up the Ulcers. The Time for gathering of this Herb to dry, is in the Middle of April, when it is in Flower; for it soon after perfects its Seeds, and dies away.

The eighth Sort grows wild in several Parts of *Yorkshire*, and other cold Countries. This spreads on the Surface of the Ground, and forms itself into a roundish Tuft, which is exceeding close and soft, and has the Appearance of Moss at a small Distance; from whence some of the Country-people give it the Name of Lady's Cushion. This Sort may be propagated in Plenty by its trailing Shoots; which, if they rest on the Ground, will put out Roots, and multiply exceedingly. It loves a moist shady Situation.

The ninth, tenth, eleventh, seventeenth, twenty-second, and twenty-third Sorts are also small Plants, which lie close to the Ground, somewhat like the eighth Sort; by which means they propagate themselves plentifully: they are all hardy Plants, being Natives of the *Alps's Pyrenees*, and other mountainous Places: they require to be planted in a moist Soil, and a shady Situation; for if they are too much exposed to the Sun, they will not thrive; nor will they continue long, if they are planted on a rich Soil.

As these Plants do not produce very beautiful Flowers, they are seldom regarded; and are rarely planted in Gardens, unless by some Persons who are curious in Botany, for the sake of Variety. But yet these Plants may be introduced to plant about Rock-work, or between

the Joints of rustic Buildings, where, if they are in the Shade, they will thrive very well, and have a very good Effect to the Sight: for these will succeed, where Moss cannot be planted; and having so much the Appearance of Moss, will be by most People taken for it at a small Distance; and as these continue green throughout the Year, they will much better answer the Purpose.

The twelfth, thirteenth, fourteenth, fifteenth, and nineteenth Sorts have broader Leaves, and appear very much like some Sorts of Houseleeks. These are very hardy Plants, being Natives of Northern Countries; therefore they must be planted in a shady Situation, and a poor Soil; but they will grow on drier Places than the former Sorts. These Plants are easily propagated by Off-sets, which they send out in great Plenty, and may be adapted to the same Purposes as the former, to adorn Rock-work, &c. and will make a pretty Diversity.

The twenty-fifth Sort is an annual Plant, which was found by Dr. *Tournefort* in the Island of *Crete*, and is by some preserv'd for the sake of Variety; but there is no great Beauty in it.

The twenty-sixth Sort was brought from *Pensylvania* to Mr. *Peter Collinson*; who hath distributed it to several Persons who are curious in preserving rare Plants. This Sort hath long Leaves, which spread on the Surface of the Ground; from between which arise the Flower-stems, which grow about two Feet high, and branch toward the Top, bearing Clusters of small greenish Flowers. This is propagated by parting of the Roots, and should be planted in a shady Situation; where, if it is duly water'd in dry Weather, it will thrive and flower every Year plentifully.

plentifully; and may be allowed a Place in a shady Border, for Variety-sake.

SCABIOSA, Scabious.

The Characters are;

It hath a flosculous Flower, consisting of many unequal Florets, contained in a common Empalement: some of these, which occupy the Middle, are cut into four or five Segments; the rest, which are placed at the Edge, are bilabiated: each of these sit on the Top of an Embryo, which is crowned; and is contained in a proper Empalement, which afterward becomes a Capsule, either simple, or funnel-shaped, pregnant with a Seed crown'd, which before was the Embryo.

The Species are;

1. *SCABIOSA pratensis hirsuta, quæ officinarum.* C. B. P. Common Field Scabious.

2. *SCABIOSA integrifolia glabra, radice præmorsa.* H. L. Whole-leav'd Scabious, or Devil's-bit.

3. *SCABIOSA stellata, folio non dissecto.* C. B. P. Starred Scabious, with an undivided Leaf.

4. *SCABIOSA stellata, folio laciniato, major.* C. B. P. Greater Starred Scabious, with a cut Leaf.

5. *SCABIOSA peregrina rubra, capitulo oblongo.* C. B. P. Red Indian Scabious, with longish Heads, commonly called Musk Scabious.

6. *SCABIOSA peregrina, capitulo oblongo, flore carneo.* H. R. Par. Indian or Musk Scabious, with longish Heads, and a flesh-colour'd Flower.

7. *SCABIOSA peregrina, capitulo oblongo, flore atro-purpureo.* H. R. Par. Indian or Musk Scabious, with longish Heads, and a dark-purple Flower.

8. *SCABIOSA peregrina, capitulo oblongo, flore variegato.* H. R. Par. Indian or Musk Scabious, with oblong Heads, and a variegated Flower.

9. *SCABIOSA Indica prolifera.* H. Edinb. Indian childing Scabious.

10. *SCABIOSA Africana frutescens.* Par. Bat. Ic. African shrubby Scabious.

11. *SCABIOSA Africana frutescens, folio rigido splendente serrato, flore albicante.* H. A. African shrubby Scabious, with a stiff shining ferrated Leaf, and a whitish Flower.

12. *SCABIOSA Alpina, folio centaurei majoris.* C. B. P. Alpine Scabious, with a greater Centaury-leaf.

13. *SCABIOSA fruticans latifolia alba.* C. B. P. White broad-leav'd shrubby Scabious.

14. *SCABIOSA fruticans latifolia, floribus ad cæruleum inclinantibus.* C. B. P. Broad-leav'd shrubby Scabious, with Flowers inclining to blue.

15. *SCABIOSA frutescens angustifolia alba.* C. B. P. White narrow-leav'd shrubby Scabious.

16. *SCABIOSA multifido folio, flore flavescente.* C. B. P. Scabious with a variously-divided Leaf, and a yellowish Flower.

17. *SCABIOSA montana glabra, folio scabiosæ vulgaris.* C. B. P. Mountain smooth-leav'd Scabious.

18. *SCABIOSA montana latifolia non laciniata, rubra & prima.* C. B. P. The first red broad-leav'd mountain Scabious, not jagged.

19. *SCABIOSA latifolia rubra non laciniata, secunda.* C. B. P. The second red broad-leav'd Scabious, not jagged.

20. *SCABIOSA argentea angustifolia.* C. B. P. Narrow silver-leav'd Scabious.

21. *SCABIOSA Sicula fruticans, laureolæ folio, subtus incano.* Inst. R. H. Shrubby Sicilian Scabious, with a Spurge-laurel-leaf, hoary underneath.

22. *SCABIOSA frutescens, foliis leucis*

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leucoii hortensis. Hort. Cath. Shrubby Scabious, with Stockgilly-flower-leaves.

23. SCABIOSA *Cretica frutescens, auriculæ urfi folio*. Tourn. Cor. Shrubby Candy Scabious, with a Bear's-ear-leaf.

24. SCABIOSA *frutescens, foliis infra integris, flore cœruleo*. Boerb. Ind. Shrubby Scabious, with the lower Leaves intire, and a blue Flower.

25. SCABIOSA *perennis Sicula, flore sulphureo*. Boerb. Ind. Perennial Sicilian Scabious, with a brimstone-colour'd Flower.

26. SCABIOSA *stellata frutescens, leucoii folio minori, una alterave crenatinciso*. Flor. Bat. Shrubby starry-seeded Scabious, with a smaller Stockgillyflower-leaf.

27. SCABIOSA *Africana frutescens maxima, foliis rugosis & crenatis, minor*. Par. Bat. Greatest shrubby African Scabious, with rough and less notched Leaves.

28. SCABIOSA *Africana frutescens maxima, foliis tenuissime incis. Boerb. Ind. alt.* Greatest shrubby African Scabious, with Leaves very finely jagged.

29. SCABIOSA *altissima annua, foliis agrimonie nonnihil similibus*. H. L. The tallest annual Scabious, with Leaves something like that of Agrimony.

30. SCABIOSA *fraxinellæ foliis*. Inst. R. H. Scabious with white Dittany-leaves.

31. SCABIOSA *virgæ pastoris folio*. C. B. P. Scabious with a lesser Tea-fel-leaf.

32. SCABIOSA *Lusitanica, Indicæ similis*. Inst. R. H. Portugal Scabious, like the Indian one.

33. SCABIOSA *stellata Hispanica, amplissimo folio*. Inst. R. H. Spanish starred Scabious, with a very large Leaf.

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34. SCABIOSA *stellata annua proli-fera*. H. Par. Annual proliferous starred Scabious.

35. SCABIOSA *Orientalis stellata, foliis variis, flore carneo, semisflosculis florum fimbriatis*. Eastern starred Scabious, with variable Leaves, and a flesh-colour'd Flower, whose Half-florets are fringed.

The first Sort here mentioned grows wild in divers Parts of England, upon arable Land; as doth the second in Woods, and shady Places; almost every-where. The first of these is what the College of Physicians have directed to be used, under the Title of Scabious; tho' the People who supply the Markets generally bring the second Sort instead thereof; but it may be easily known therefrom by its hairy divided Leaves. The second Sort the College have directed to be used under the Title of Devils-bit; which Name it received from the lower Part of its Root being commonly eaten off.

Both these Plants are very common in the Fields and Woods; but may be propagated in Gardens, by sowing their Seeds in the Spring upon a Bed of fresh Earth; and when the Plants are come up, they must be transplanted into other Beds of fresh Earth, at about eight or ten Inches Distance; observing to water them until they have taken Root; after which time they will require no farther Culture, but to keep them clear from Weeds; and the second Summer they will flower, and produce Seeds: but their Roots will abide many Years, and may be parted to propagate the Species.

The third Sort will grow to the Height of four or five Feet, and have a woody Trunk: this is preserved in Green houses in Winter, by such as are curious in foreign Plants.

Plants. It may be propagated by planting Slips or Cuttings in Pots of fresh Earth, during any of the Summer-months; which, if placed in a moderate Hot-bed, watered and shaded, will take Root in a short time; after which they may be inured to the open Air by degrees, into which they should be removed to continue abroad until *October*, when they must be carried into Shelter; but must have as much free Air as possible in mild Weather; for they only require to be protected from hard Frost, and frequently watered. This Plant produces Flowers most Part of the Year, for which it is chiefly preserved; tho' the Flowers have not more Beauty nor Scent than the common Field-sort.

The fourth Sort is an annual Plant, which is preserved in the Gardens of the Curious; but the Flowers of this are very like those of the former Sort, and have no Scent.

The *Indian* or Musk Scabious's are preserved for the Beauty and sweet Scent of their Flowers, which continue a long time. These are propagated by sowing of their Seeds; the best time for which is about the latter-end of *May*, or the Beginning of *June*, that the Plants may get Strength before Winter; for if they are sown too early in the Spring, they will flower the Autumn following; and the Winter coming on soon, will prevent their ripening Seeds: besides, there will be fewer Flowers upon those, than if they had remained strong Plants thro' the Winter, and had sent forth their Flower-stems in Spring; for these will branch out on every Side, and produce a prodigious Number of Flowers, and continue a Succession of them on the same Plants from *June* to *September*, and produce good Seeds in Plenty.

The Seeds of these Plants should be sown upon a shady Border of fresh Earth (for if they are sown upon a Place too much exposed to the Sun, and the Season should prove dry, few of them will grow). When the Plants are come up, they may be transplanted into other Beds or Borders of fresh Earth, observing to water and shade them until they have taken Root; after which they will require no farther Care, but to keep them clear from Weeds till *Michaelmas*, when they may be transplanted into the Middle of the Borders in the Pleasure-garden; where the several Sorts being intermix'd, will make an agreeable Variety.

They are extremely hardy, being rarely injur'd by Cold, unless they have shot up to flower before Winter; but seldom continue after ripening their Seeds.

The two *African* Tree Scabious's are abiding Plants, which are preserved in Pots, and housed in Winter, as the third Sort: these may be propagated by Slips or Cuttings, as the third, and require the same Management.

The twelfth Sort is preserved by such as are curious in collecting Varieties of Plants; but the Flowers have no Scent: however, as it is an hardy Plant, requiring no other Culture than the common Field Sort, it may be admitted, for Diversity, into the Pleasure-garden; because it will thrive in shady Places, where few other Plants will grow.

The thirteenth, fourteenth, fifteenth, sixteenth, seventeenth, eighteenth, nineteenth, twentieth, twenty-fourth, twenty-fifth, thirtieth, and thirty-first Sorts are all of them abiding Plants, which are hardy enough to live in the open Air in

England;

England; so may be managed as hath been directed for the common Sorts of Scabious.

The twenty-first, twenty-second, twenty-third, and twenty-sixth Sorts, are also abiding Plants; but are somewhat tenderer than those before-mention'd: so some Plants of each Kind should be kept in Pots, that they may be shelter'd in Winter under a common Hot-bed-frame; and the others must be planted in warm Borders, otherwise they will not live thro' the Winters in this Country: and if the Soil in which these are planted, is poor and dry, they will grow stunted, and bear the Cold much better, than those which are planted in a rich Soil, and grow freely. Those Plants which are in Pots, and are placed in Shelter in Winter, must have as much free Air as possible in mild Weather; otherwise they will draw up weak, and appear very unsightly; so they should only be cover'd in very hard Frosts, and continually expos'd when the Weather is mild.

The twenty-seventh and twenty-eighth Sorts were brought from the *Cape of Good Hope*; so are more tender than the former: therefore these must always be kept in Pots, and in Winter should be placed in an airy Glass-case, where in mild Weather they may have as much free Air as possible; they should be frequently water'd, for they are very thirsty Plants. In severe Frost they must be carefully guarded; but they will bear a little Cold pretty well.

All the shrubby Sorts of Scabious may be propagated by Cuttings, which may be taken off during any of the Summer-months; and should be planted in a shady Border, and duly water'd in dry Weather, which will promote their taking Root; and then they may be potted, and placed

in a shady Situation, till they have taken new Root; after which time they may be placed amongst other hardy Exotic Plants, in a shelter'd Situation, where they may remain until the End of *October*, when they must be removed into Shelter. In some favourable Seasons these Plants will produce good Seeds in *England*, so that the Plants may be raised from these, by sowing them in an open Border of light Earth about the Middle of *March*; and if the Spring should prove very dry, it will be necessary to water the Ground now-and-then, which will forward the Vegetation of the Seed; so that the Plants will appear in about three Weeks after the Seeds are sown. When they come up, they must be kept clear from Weeds, and in dry Weather duly water'd; and when they are strong enough to transplant, they should be planted in Pots, and managed in the same manner as those Plants which are propagated by Cuttings.

The twenty-ninth, thirty-second, thirty-third, thirty-fourth, and thirty-fifth Sorts are annual Plants, which are only propagated by Seeds. These may be managed in the same manner as hath been directed for the *Indian Scabious's*.

All the Sorts of Scabious continue a long time in Flower, for which they are regarded; for there is no very great Beauty in many of their Flowers: but as most of the hardy Sorts produce Flowers near three Months successively, they may be allowed a Place in the Borders of large Gardens, because they require very little Care to cultivate them. And as the shrubby Kinds continue in Flower most Part of the Year, they make an agreeable Variety amongst hardy Exotic Plants in Winter.

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SCANDIX, Shepherds Needle,
or Venus-comb.

The Characters are ;

It hath a rose-shaped umbellated Flower, consisting of several Petals, which are ranged orbicularly, and rest on the Empalement ; which becomes a Fruit consisting of two Parts, having two Seeds, which resemble a Needle, when joined.

The Species are ;

1. *SCANDIX semine rostrato, vulgaris.* C. B. P. Common Shepherds Needle, with beaked Seeds.

2. *SCANDIX Cretica major.* C. B. P. Great Shepherds Needle of Crete.

3. *SCANDIX Cretica minor.* C. B. P. Smaller Shepherds Needle of Crete.

4. *SCANDIX Orientalis, flore maximo.* Tourn. Cor. Eastern Shepherds Needle, with a very large Flower.

The first of these Plants grows wild amongst Corn, in most Parts of England. The second and third Sorts grow wild in the Island of Candia; and the fourth Sort was discovered by Dr. Tournefort in the Levant.

These Plants are preserv'd by the Curious in Botany, for the sake of Variety ; but are seldom admitted into other Gardens. The Fruit of these Plants, having Beaks greatly resembling Cranes Bills, may be taken for them at a small Distance ; but being ranged somewhat like the Teeth of a Comb, occasion'd the Name given to it.

They may be propagated by Seeds, which should be sown in Autumn, soon after they are ripe, in the Place where they are design'd to remain, which should be in a shady Situation ; and when the Plants are come up, they will require no farther Care, but to keep them clear from Weeds. In May the Plants will flower, and in the Beginning of July

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they will perfect their Seeds, and soon after decay. But if their Seeds are permitted to scatter, the Plants will come up without any manner of Care, and become Weeds in the Garden.

SCILLA, Squills.

The Characters are ;

It hath a large, acrid, bulbous Root, like an Onion : the Leaves are broad : the Flowers are like those of Ornithogalum, or the Starry Hyacinth : they grow in a long Spike, and come out before the Leaves.

The Species are ;

1. *SCILLA vulgaris, radice rubra.* C. B. P. Common red Squill.

2. *SCILLA radice alba.* C. B. P. The white Squill.

These Plants are very common upon the sandy Shores of Spain, and the Levant, from whence their Roots are annually brought to England, for medicinal Use : but altho' these Roots are brought over chiefly for medicinal Use, yet are they worthy of being cultivated in every good Garden, for the Beauty of their Flowers ; which make a very handsome Appearance when they are strong Roots.

The best time to transplant these Roots is in May, when their Leaves are decay'd : and if the Roots are brought from Abroad, if they can be procur'd firm at that Season, or a little after, they should be planted in Pots of light sandy Earth, and placed in the Windows of the Greenhouse ; where, if they are blowing Roots, they will flower the July following.

These Plants must be preserv'd in Shelter during the Winter - season ; because, if their Leaves are destroy'd by Frost in Winter, the Roots are subject to perish : but in Summer they should be expos'd to the open Air, and in dry Weather must be frequently

frequently water'd ; especially during the Season their Leaves are on, or that they are in Flower : but when the Roots are in a State of Rest, they should have but little Moisture ; for Wet at that time will rot them. They are pretty hardy, and only require to be shelter'd from hard Frost ; but must have as much free Air as possible in open Weather.

SCLAREA, Clary.

The Characters are ;

It is a verticillate Plant, with a labiated Flower, consisting of one Leaf, whose Upper-lip (or Crest) is hooked ; but the Under-lip (or Beard) is divided into three Parts, the middle Segment being hollow and bifid : out of the Flower-cup rises the Pointal, attended by four Embryoes, which afterward turn to so many roundish Seeds inclosed in an Husk, which was before the Flower-cup.

The Species are ;

1. SCLAREA. Tabern. Ic. Common Garden Clary.
2. SCLAREA vulgaris lanuginosa, amplissimo folio. Tourn. Common downy Clary, with a large Leaf.
3. SCLAREA laciniatis foliis. Tourn. Clary with a jagged Leaf.
4. SCLAREA Lusitanica glutinosa, amplissimo folio. Tourn. Portugal Clary, with a large glutinous Leaf.
5. SCLAREA Indica, flore variegato. Tourn. Indian Clary, with a variegated Flower,
6. SCLAREA rugoso, verrucoso, & laciniato folio. Tourn. Clary with a rough, warted, and jagged Leaf.
7. SCLAREA glutinosa, floris lutei variegati barba ampla cava. Boerb. Ind. Glutinous Clary, with a yellow variegated Flower, having a large hollow Beard, commonly call'd Jupiter's Distaff.
8. SCLAREA folio salviae, minor, fere glabra. Tourn. Lesser or smooth Clary with a Sage-leaf.

9. SCLAREA Orientalis, folio betonica acutissimo, coma purpurascete. T. Cor. Eastern Clary, with a sharp - pointed Betony - leaf, and a purplish Top.

10. SCLAREA pratensis, foliis serratis, flore suave - rubente. Tourn. Meadow Clary, with serrated Leaves, and a soft-red Flower.

The common Garden Clary is chiefly cultivated in England for medicinal Use ; but the other Sorts are preserv'd in Botanic Gardens for the sake of Variety, with many other Sorts of less Note : however, those here mention'd are worthy of a Place in large Gardens, where, if they are intermix'd among other large growing Plants, they will afford a pretty Variety ; especially the fifth, eighth, ninth, and tenth Sorts, which produce long Spikes of beautiful Flowers, and continue a long time in Beauty.

The Flowers of the seventh Sort are us'd in Holland, to give a Flavour to the Rhenish Wines, which are brew'd at Dort.

All these Sorts may be propagated by sowing their Seeds upon a Bed of fresh Earth in March or April ; and when the Plants are come up, they should be transplanted into Beds of fresh Earth, about eight Inches asunder, observing to water them until they have taken Root ; after which they will require no farther Care, but to keep them clear from Weeds until Michaelmas, when they should be transplanted into the Places where they are to remain, placing them at a large Distance ; for they spread pretty far, provided the Soil be good. If these Plants are planted for a Crop intended for medicinal Use, they should be planted in Rows two Feet and an half asunder, and the Plants eighteen Inches distant in the Rows ; but the other

other Sorts to be placed in Borders should be planted eight or ten Feet distant, being intermix'd with other Plants. Some of these Sorts will endure many Years, provided they are planted on a fresh Soil, not over-moist or rich; but others rarely continue longer than the second Year, perishing soon after they have perfected their Seeds: these should therefore be often renewed from Seeds, to have a Continuance of them; but the other Sorts may be increased by parting their Roots, the best time for which is at *Michaelmas*, when their Stems begin to decay.

SCOLYMUS, The Golden-thistle.

The Characters are;

The whole Plant hath the Appearance of a Thistle: the Flower consists of many Half-flowers, which rest on the Embryoes; each of these are separated by a thin Leaf; and on the Top of each Embryo is fasten'd a little Leaf: these are contain'd in a scaly Empalement, which incloses the Seed.

The Species are;

1. **SCOLYMUS chrysanthemus**. C. B. P. The Golden-thistle.
2. **SCOLYMUS chrysanthemus annuus**. H. R. Par. Annual Golden-thistle.
3. **SCOLYMUS chrysanthemus Africanus procerior**. H. R. Par. Taller African Golden-thistle.

The first and second Sorts grow wild in the South of *France*, and in *Spain*; but the third Sort is a Native of *Africa*. The first and third Sorts are biennial Plants; but the second is an annual, and perishes soon after it has perfected its Seeds.

They are propagated by Seeds, which should be sown in *March*, on a Bed of fresh undung'd Earth, in an open Situation; and when the Plants

are come up, they should be kept clear from Weeds; and where they grow too close, some of them should be pulled out, so as to leave those which are design'd to remain, about two Feet asunder. This is all the Culture which these Plants require; for as they send forth Tap-roots, they do not bear transplanting well; therefore they must be sown where they are to remain; and if they are kept clear from Weeds, they will thrive very well; and when the Seasons prove dry, will perfect their Seeds in Autumn; but in wet Seasons they rarely ever produce good Seeds in *England*; which renders it difficult to continue the Species, without procuring fresh Seeds from *Abroad*.

These Plants are preserved by those Persons who are curious in Botany, for Variety-sake; but are rarely planted in other Gardens.

SCORDIUM, Water-germander.

The Characters are;

The Flowers are like those of Germander, which are produc'd from the Wings of the Leaves: the Flower-cup is tubulous; and the whole Plant smells like Garlick.

The Species are;

1. **SCORDIUM**. C. B. P. Common Water-germander.
2. **SCORDIUM alterum**, five *salvia agrestis*. C. B. P. Wild-sage, vulgo.
3. **SCORDIUM frutescens**, folio angusto *salviae*, flore luteolo. Boerb. Ind. Shrubby Wild-sage, with a narrow Sage-leaf, and yellowish Flowers.

The first of these Plants grows wild in moist Places in the *Isle of Ely*, in great Plenty; but near *London* it is propagated in Gardens for medicinal Use. This Plant is increased by parting the Roots, or from Cuttings or Slips: the best time

time for this Work is the Beginning of *March*. These Slips must be planted in Beds of moist Earth, about four or five Inches asunder, observing to water them well until they have taken Root; after which they will require no further Care but to keep them clear from Weeds, and in *July* the Plants will be fit to cut for medicinal Use, being at that time in Flower; but it is not proper to transplant them every Year, for then the Crop will be smaller; therefore every other Year will be sufficient to renew these Beds: nor should they be planted again upon the same Ground, but upon a fresh Spot; otherwise they will not thrive.

The Wild-fage is very common in Woods, and shady Places, in divers Parts of *England*; and is rarely cultivated in Gardens, except by those who are curious in Botany. This may be propagated by sowing the Seeds in the Spring upon a Bed of fresh Earth; and when the Plants are come up, they should be transplanted out, at about a Foot asunder, upon a fresh light Soil, observing to water them until they have taken Root; after which they will require no farther Care but to keep them clear from Weeds; for they are extremely hardy, and will abide many Years in almost any Soil or Situation.

The third Sort is of a more tender Nature, and requires to be shelter'd from severe Frost; to which if it be expos'd, it is often destroy'd. This may be propagated by sowing the Seeds as the former; but when the Plants come up they should be plac'd in Pots of fresh Earth, and in Winter put in an airy Part of the Green-houses, where they may enjoy the free Air when the Weather is

mild; for if they are too much drawn, they are subject to mould and decay. In the Summer-season they should be expos'd to the open Air, with Myrtles, and other foreign Plants; and must be frequently refresh'd with Water.

SCORPIURUS, Caterpillers.

The Characters are;

It hath a papilionaceous Flower, out of whose Empalement rises the Pointal, which afterward becomes a jointed Pod, convoluted like a Snail or Caterpillar, having a Seed in each Joint, which is, for the most part, of an oval Figure.

The Species are;

1. SCORPIURUS *bupleuri folio*. C. B. P. The great rough Caterpillar.

2. SCORPIURUS *bupleuri folio, corniculis asperis, magis in se contortis & convolutis*. Mor. Hist. Prickly Caterpillar.

3. SCORPIURUS *bupleuri folio, siliquis levibus*. Park. Theat. Smooth-podded Caterpillar.

4. SCORPIURUS *siliqua crassa Boelii*. Ger. Emac. Thick-podded Caterpillar.

5. SCORPIURUS *siliqua cochleata & striata Olyssiponensis*. H. R. Par. Caterpillar with a twisted furrowed Pod.

6. SCORPIURUS *feliis viciae, minima*. Mor. Hist. The smallest Caterpillar, with Vetch-leaves.

These Plants are preserv'd in several curious Gardens, for their Oddness more than for any great Beauty: they are all of them annual Plants, which are propagated by sowing their Seeds upon a Bed of fresh light Earth; and when the Plants are come up, they should be thinned, so as to leave them about ten Inches or a Foot asunder, because their Branches trail upon the

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Ground ; and if they have not room, they are apt to overbear each other, and thereby are very often rotted, especially in moist Seasons. The Weeds should also be diligently clear'd from them, otherwise they will grow over and destroy them: in June these Plants will produce small yellow papilionaceous Flowers, which are succeeded by Pods, which of the first Sort are so much like Caterpillers, that a Person, at a small Distance, would imagine they were real Caterpillers feeding on the Plants ; and it is for this Oddness of their Pods that these Plants are chiefly preserv'd.

These Plants will seldom thrive well, if they are transplanted ; therefore the best Method is, to put in three or four good Seeds in each Place where you would have the Plants remain (which may be in the Middle of large Borders in the Pleasure-garden, where being intermix'd with other Plants, they will afford a pleasing Variety). When the Plants come up, there should be only one of the most promising left in each Place, which should be constantly kept clear from Weeds ; and when their Pods are ripe, they should be gather'd and preserv'd in a dry Place till the following Spring, in order to be sown.

The first, third, and fourth Sorts are the best worth cultivating, their Pods being large, and more visible than the other, and are more in form of a Caterpillar.

SCORZONERA, Vipers-grafs.

The Characters are ;

It hath a semisflosculous Flower, consisting of many Half-florets, which rest upon the Embryoes, which are included in one common Empalement, which is sealy : the Embryoes afterward become oblong Seeds, which are furnish'd with Down.

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The Species are ;

1. SCORZONERA *latifolia sinuata*.
C. B. P. Common or broad-leav'd Vipers - grafs, with an indented Leaf.

2. SCORZONERA *latifolia altera*.
C. B. P. Another broad - leav'd Vipers-grafs.

3. SCORZONERA *laciniatis foliis*.
Tourn. Vipers-grafs with jagged Leaves.

The first of these Sorts is what the College of Physicians have directed for medicinal Use ; and it is also cultivated for the Use of the Kitchen in divers Gardens near London ; tho' at present it is not so much propagated as it hath been some Years since, when it was more commonly brought to the Markets.

The second Sort is equally as good as the first for all the Purposes for which that is cultivated ; but as it is less common, it is rarely found in England, except in Botanic Gardens ; where the third Sort is also cultivated for Variety, but is never apply'd to any Uses.

These Plants may be propagated by sowing their Seeds in the Spring upon a Spot of fresh light Soil. The best Method of sowing them is, to draw shallow Furrows by a Line about a Foot asunder, into which you should scatter the Seeds, thinly covering them over about half an Inch thick with the same light Earth ; and when the Plants are come up, they should be thinned where they are too close in the Rows, leaving them at least six Inches asunder ; and, at the same time, you should hoe down all the Weeds to destroy them : and this must be repeated as often as is necessary ; for if the Weeds are permitted to grow among the Plants, they will draw them up weak, and prevent their Growth.

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There are many People who sow these Seeds promiscuously in a Bed, and afterward transplant them out at the Distance they would have them grow : but this is not so well as the former Method, because their Roots commonly shoot downright, which, in being transplanted, are often broken ; so that they never will make such fair Roots as those which remain in the same Place where they are sown : for when the extreme Part of the Root is broken, it never extends itself in Length afterward ; but only shoots out into many forked small Roots, which are not near so valuable as those which are large and strait. These Roots may be taken up when the Leaves begin to decay ; at which time, they have done growing ; tho' they may remain in the Ground until Spring, and may be taken up as they are used : but those which remain in the Ground after March will shoot up their Flower-stems ; after which they are not so good, being sticky and strong.

If you intend to save Seeds of these Plants, you should let a Parcel of the best remain in the Places where they grew ; and when their Stems are grown to their Height, they should be supported with Stakes, to prevent their falling to the Ground, or breaking. In June they will flower ; and about the Beginning of August their Seeds will ripen, when they should be gather'd, and preserv'd dry till the Spring following, for Use.

SCROPHULARIA, Figwort.

The Characters are ;

It hath an anomalous Flower, consisting of one Leaf, gaping on both Sides, and generally globular, cut, as it were, into two Lips ; under the upper one of which are two small Leaves :

the Pointal rises out of the Flower-cup, which after-ward turns to a Fruit or Husk, with a roundish-pointed End, opening into two Divisions, parted into two Cells by an intermediate Partition, and full of small Seeds, which adhere to the Placenta.

The Species are ;

1. SCROPHULARIA *nodosa fetida*. C. B. P. Stinking knobbed-rooted Figwort.

2. SCROPHULARIA *aquatica major*. C. B. P. Greater Water Figwort.

3. SCROPHULARIA *Hispanica, sambuci folio glabro*. Tourn. Spanish Figwort, with a smooth Elder-leaf.

4. SCROPHULARIA *maxima Lusitanica, sambuci folio lanuginoso*. Tourn. Greatest Portugal Figwort, with a woolly Elder-leaf.

5. SCROPHULARIA *ruta canina dicta vulgaris*. C. B. P. Figwort, commonly called Dog's-rue.

6. SCROPHULARIA *saxatilis lucida, laserpitii Massiliensis foliis*. Boc. Mus. Shining Rock Figwort, with Leaves like the Marseilles Laserwort.

7. SCROPHULARIA *glauco folio, in amplas lacinias diviso*. Tourn. Figwort with a sea-green Leaf, divided into large Segments.

8. SCROPHULARIA *foliis filicis modo laciniatis, vel ruta canina latifolia*. C. B. P. Figwort with Leaves jagged after the manner of Fern, or broad-leav'd Dog's-rue.

9. SCROPHULARIA *flore luteo*. C. B. P. Figwort with a yellow Flower.

10. SCROPHULARIA *folio urticae*. C. B. P. Figwort with a Nettle-leaf.

11. SCROPHULARIA *betonicae folio*. Inst. R. H. Figwort with a Betony-leaf.

12. SCROPHULARIA *Scorodoniae folio*. Mor. Hist. Figwort with a Wood-sage-leaf.

13. SCROPHULARIA *peregrina frutescens, foliis teucrii crassiusculis*. Breyn. Cent. Foreign shrubby Figwort, with a thick Tree German-der-leaf.

14. SCROPHULARIA *Lusitanica frutescens, verbenacæ foliis*. Inst. R. H. Shrubby Portugal Figwort, with Vervain-leaves.

15. SCROPHULARIA *Cretica frutescens, folio vario crassiori*. Tourn. Cor. Shrubby Figwort of Candia, with a thicker variable Leaf.

16. SCROPHULARIA *Græca frutescens & perennis, urticæ folio*. Tourn. Cor. Greek shrubby and perennial Figwort, with a Nettle-leaf.

17. SCROPHULARIA *Ephesia, lunariæ folio, flore rubro*. Tourn. Cor. Ephesian Figwort, with a Moonwort-leaf, and a red Flower.

18. SCROPHULARIA *Orientalis, foliis cannabinis*. Tourn. Cor. Eastern Figwort, with Bastard-hemp-leaves.

19. SCROPHULARIA *Orientalis, amplissimo folio, caule alato*. Tourn. Cor. Eastern Figwort, with a large Leaf, and a winged Stalk.

20. SCROPHULARIA *Orientalis, tilia folio*. Tourn. Cor. Eastern Figwort, with a Lime-tree leaf.

21. SCROPHULARIA *Orientalis, chrysanthemi folio, flore minimo variegato*. Tourn. Cor. Eastern Figwort, with a Corn-marigold-leaf, and the least variegated Flower.

The first Sort here mention'd grows wild in great Plenty in Woods, and other shady Places, in divers Parts of England, and is rarely cultivated in Gardens: but this being the Sort which the College of Physicians have directed for medicinal Use, under the Title of *Scrophularia*

major, it is by some preserved in their Physic-gardens.

The second Sort is also very common in moist Places, and by the Sides of Ditches almost every-where: this is also an officinal Plant, and stands in the Catalogue of Simples, under the Title of *Betonica aquatica*, i. e. Water-betony, because the Leaves are somewhat like those of Betony.

These two Plants may be easily propagated in Gardens, by sowing their Seeds early in the Spring upon a Bed of fresh Earth, in a shady Situation; and when the Plants are come up, they should be transplanted out into a strong moist Soil, about two Feet asunder, observing to water them until they have taken Root; after which they will require no farther Care, but to hoe down the Weeds between them, from time to time, as they are produced. The second Year these Plants will shoot up to flower; and if their Stems are suffered to remain, they will produce Seed: but the Herb is generally cut for Use, just as the Flowers begin to open; for if it stands longer, the Leaves change, and the whole Plant contains much less Juice. These Roots will abide many Years without renewing: but it will be proper to transplant them every other Year, otherwise their Roots will spread over each other, and thereby destroy themselves.

The third and fourth Sorts are very beautiful Plants, being worthy of a Place in every good Garden: these are somewhat tenderer than the former Sorts; tho' they will endure the Cold of our ordinary Winters, if planted in a light Soil, and a warm Situation. These may be propagated by sowing their Seeds in the Spring, upon a Bed of fresh Earth;

Earth ; and when the Plants are come up, they should be transplanted into Beds of fresh Earth, at about six Inches Distance from each other, observing to water and shade them until they have taken Root ; after which they will require no farther Care, but to keep them clear from Weeds, and in very dry Weather to refresh them with Water.

At *Michaelmas* some of them may be transplanted into the Middle of warm Borders in the Pleasure-garden ; and the rest maybe planted into Pots fill'd with fresh light Earth, which in Winter should be sheltered under a common Hot-bed-frame, where they may be covered in frosty Weather ; but in mild Weather they should have as much free Air as possible. These Plants, thus shelter'd, will flower very strong in *May* ; and if duly watered in dry Weather, will produce ripe Seeds in *July*, which may be gathered in the Pods, and preserved for sowing. The Roots of these Plants will abide three or four Years, unless destroyed by great Cold ; and may be parted, to increase them : but these Plants which are propagated from Slips, seldom flower so strong as those produced from Seeds ; so that it is the best Way to raise every Year some from Seeds to succeed the old Roots.

The fifth, sixth, seventh, and eighth Sorts are also tender, and will rarely endure the Cold of our Winters without Shelter, unless in some very warm Situations ; therefore these should be planted in Pots fill'd with fresh light Earth, and sheltered in Winter as the two former Sorts. These may be propagated from Seeds, as the former Sorts. These Sorts seldom abide longer than two Years, and must be defended from Frost in Winter ; so that

they should be often renew'd from Seeds.

The ninth, tenth, eleventh, and twenty-first Sorts are biennial Plants, which very rarely live longer than two Years. These seldom flower the same Season their Seeds are sown ; or if they do, it is generally pretty late in Autumn ; so that they do not produce good Seeds : but when the Plants grow short, and do not put out their Flower-stems the first Year, they flower very strong early in the following Summer, and produce good Seeds. These Sorts are hardy enough to endure the Cold of our ordinary Winters very well, provided they are planted in a dry undunged Soil.

The twelfth, thirteenth, fourteenth, fifteenth, sixteenth, eighteenth, nineteenth, and twentieth Sorts are abiding Plants, their Roots continuing many Years ; and the eighteenth Sort creeps at the Root, so that it propagates very fast that way, as also by Seeds. This is an extreme hardy Plant, and will live in almost any Soil and Situation ; but should not be planted too near other Plants, because it creeps so far, as to interfere with such Plants as grow near it.

The other Sorts will endure the Cold of our ordinary Winters very well, if they are planted in a sheltered Situation ; and when they are planted in a lean rubbishy Soil, they will not grow too freely, but will be stinted, and endure a much greater Share of Cold, than when they are planted in a rich Soil, where they become very luxuriant.

All these Sorts are propagated by Seeds, which should be sown on a Bed of light Earth in the Spring ; but it often happens, that the Seeds will lie in the Ground a Year, or longer, before the Plants come up ; so that the Ground should not be disturbed.

if the Plants do not appear the first Year : but it should be kept clean from Weeds, and wait until the Plants come up ; and when they are fit to remove, they should be transplanted where they are to remain. These Sorts are preserved by those who are curious in the Study of Plants ; but are rarely propagated in other Gardens.

SCUTELLARIA, Scull-cap.

The Characters are ;

The Empalement of the Flower is of the Lip-kind ; the upper Segment resembling an Helmet ; and is divided into three Segments ; the middle being broad and concave ; but the other two are narrow and plain : the Beard, or lower Lip, is divided into two equal Segments : the Calyx, having a Cover, contains a Fruit resembling the Heel of a Slipper or Shoe ; which Character is sufficient to distinguish it from all the other Genera of this Class.

The Species are ;

1. SCUTELLARIA *foliis ovatis serratis, spica interrupta.* Lin. Hort. Cliff. Scull-cap with oval sawed Leaves, and an interrupted Spike.

2. SCUTELLARIA *foliis cordato-lanceolatis crenatis.* Lin. Hort. Cliff. Marsh common Scull-cap,

3. SCUTELLARIA *foliis ovatis crenatis, spicis imbricatis.* Lin. Hort. Cliff. Alpine Scull-cap, with a large Flower, and an imbricated Spike.

4. SCUTELLARIA *foliis inciso-serratis utrinque glabris, spica tetragona.* Lin. Hort. Upsal. Alpine Scull-cap, with smooth sawed Leaves, and a large Flower with a square Spike.

5. SCUTELLARIA *foliis cordato-lanceolatis serratis, pedunculis multifloris.* Flor. Leyd. Scull-cap with heart-shaped sawed Leaves, and many long Flowers growing upon each Footstalk.

6. SCUTELLARIA *foliis cordatis obtusis obtuse serratis, spicis foliosis.*

Flor. Leyd. Scull-cap with blunt heart-shaped sawed Leaves, and a leafy Spike.

7. SCUTELLARIA *foliis cordato-oblongis acuminatis serratis, spicis subnudis.* Flor. Leyd. Scull-cap with oblong pointed heart-shaped Leaves, which are sawed, and the lower Part of the Spike naked.

8. SCUTELLARIA *foliis pinnatifidis.* Lin. Hort. Cliff. Eastern Scull-cap, with elegant cut Leaves.

9. SCUTELLARIA *incana, foliis magis laciniatis, flore luteo.* Hoary Eastern Scull-cap, with Leaves much cut.

The second Sort is a common Weed, which grows plentifully by the Side of Ditches, in most Parts of England ; therefore is not admitted into Gardens : this was formerly titled *Lyfimachia galericulata*.

The first Sort grows plentifully in Italy, and other warm Countries, in moist Places : this is a Plant of no great Beauty ; but is kept in Botanic Gardens for the sake of Variety.

The third and fourth Sorts are Natives of the Alps ; the Branches of these trail upon the Ground ; and at the End of each there is a Spike of large Flowers, which in one Sort are blue, with yellow Falls ; and those of the other are white : the Flowers of these Plants continue a long time ; so a few Plants of each Sort may be admitted to have a Place in large Gardens, where they will add to the Variety : these perfect their Seeds very well in England ; so that they may be propagated in plenty : the Seeds may be sown upon a Bed of common Earth about the Latter-end of March ; and when the Plants are fit to remove, they may be either planted in the Borders of the Pleasure-garden, or into Nursery-beds, where they may stay till the following Autumn ; and then

then they should be planted where they are design'd to remain : they are very hardy Plants ; therefore will thrive in any Situation, and continue several Years.

The fifth, sixth, and seventh Sorts have upright Shoots ; and the Flowers of these are produc'd in long Spikes ; but they are small, and have little Beauty ; so the Plants are only preserved in the Gardens of the Curious, for the sake of Variety : they are hardy perennial Plants, and perfect their Seeds in plenty every Year ; so may be propagated in the same manner as the former.

The eighth and ninth Sorts have trailing Branches, which are garnished with elegant Leaves ; those of the eighth Sort being shaped like German-der, and are hoary underneath : those of the ninth Sort are deeply fawed, and are hoary on both Sides : these produce Spikes of yellow Flowers, which make a pretty Appearance, and continue long in Beauty ; so that they deserve a Place in every curious Garden : these Sorts are pretty hardy, in respect to Cold ; but they should be planted on a dry Soil, otherwise they will not live thro' the Winter ; nor do these Plants thrive well in Pots ; therefore they should always be planted in the full Ground : they perfect their Seeds well every Year ; so young Plants should be annually raised, because they seldom continue longer than two Years.

SECALE, Rye.

The Characters are ;

The Flowers have no Leaves, but consist of several Stamina, which are produc'd from the Flower-cup : these Flowers are collected into a flat Spike, and are disposed almost singly : from the Flower-cup rises the Pointal ; which afterward becomes an oblong slender Seed, inclosed in an Husk,

which was before the Flower-cup : this differs from Wheat, in having a flatter Spike, the Awn larger, and more naked.

The Species are ;

1. SECALE *hybernum, vel majus.*
C. B. P. Common or Winter Rye.

2. SECALE *vernum & minus.* C.
B. P. Lesser or Spring Rye.

The first Sort is what the generality of Farmers propagate, and is usually sown in Autumn, at the same Season with Wheat : and in many of the Northern Counties, as also in *Wales*, they are often mixed together : tho' I think it must be very bad Husbandry ; for the Rye will always ripen sooner than Wheat ; so that if the latter is permitted to stand to be fully ripe, the former will shatter : nor can this be practised where the People are not accustomed to eat Rye-bread ; for altho' it is by some accounted good when mixed, yet it being so very clammy, few People, who have been fed with Wheat, will ever care to eat the Bread made of this.

It is generally sown on poor, dry, gravelly, or sandy Land, where Wheat will not thrive ; and in such Places may answer very well : but on such Land as will bear Wheat, it is not proper to sow Rye ; since of late Years that Wheat has been at a low Price, the other has been worth little.

When Rye is sown, the Ground should not be too wet ; and if it should happen, that much Rain falls before the Rye is come up, it often rots in the Ground ; but it is not long in coming up, it being much sooner out of the Ground than Wheat.

The small Rye may be sown in the Spring, about the same time with Oats, and is usually ripe as soon

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as the other Sort : but if the Season proves wet, it is apt to run much to Straw ; and the Grain is generally lighter than the other ; so the only Use of this Sort is to sow upon such Lands, where the Autumnal Crop may have miscarried.

The general Use of Rye is for Bread, either alone, or mixed with Wheat ; but (as was before observed) it is only fit for such Persons who have always been used to this Food, few other Persons caring to eat of it : nor have I ever heard of its having been exported ; so can never be worth cultivating in general ; tho' I have been informed it will yield a strong Spirit, which perhaps may occasion its being more cultivated, since the pernicious Use of Spirituous Liquors is now tolerated.

Rye is also sown in Autumn to afford green Feed for Ewes and Lambs in the Spring, before there is plenty of Grass : when this is intended, the Rye should be sown early in Autumn, that it may have Strength to furnish early Feed : the great Use of this is, to supply the want of Turneps, in those Places where they have failed ; as also after the Turneps are over, and before the Grass is grown enough, to supply green Feed for the Ewes : so that in those Seasons, when the Turneps in general fail, it is very good Husbandry to sow the Land with Rye, especially where there are Stocks of Sheep, which cannot be well supported, where green Feed is wanting early in the Spring : therefore those Farmers, who have large live Stocks, should have several Methods of supplying themselves with sufficient Feed, lest some should fail ; for as Turneps are a very precarious Crop, some Land should be sown with Cole-seed, which will sup-

ply the Want of Turneps in Winter : and if some of the Ground, which was sown late with Turneps, which had failed, was sown in Autumn with Rye, that would be proper to supply the want of Cole-seed afterward.

SECURIDACA, Hatchet-vetch.

The Characters are ;

It hath a papilionaceous Flower, out of whose Empalement rises the Pointal, which afterward becomes an upright, plain, articulated Pod, containing in each Joint a rhomboid Seed, having a Notch on the inner Side.

We have but one Species of this Plant in England ; viz.

SECURIDACA lutea major. C. B. P. The greater yellow Hatchet-vetch.

This Plant grows among the Corn in Spain, Italy, and other warm Countries ; but in England it is preserv'd in Botanic Gardens, for the sake of Variety : this may be propagated by sowing the Seeds in Borders of fresh light Earth in the Spring, in the Places where they are to abide ; for they seldom succeed well, if they are transplanted : they should be allowed at least two Feet Distance, because their Branches trail upon the Ground. In June these Plants will flower, and in August their Seeds will ripen, when they should be gathered, and preserved for Use. A few of these Plants may be admitted into every good Garden for Variety ; tho' there is no great Beauty in their Flowers.

SEDUM, Houseleek.

The Characters are ;

The Flower consists of several Leaves, which are placed orbicularly, and expand in form of a Rose ; out of whose Flower-cup rises the Pointal, which afterward turns to a Fruit, composed,

composed, as it were, of many Seed-vessels, resembling Husks, which are collected into a sort of Head, and full of small Seeds.

The Species are ;

1. *SEDUM majus vulgare*. C. B. P. Common great Housleek.
2. *SEDUM minus luteum, folio acuto*. C. B. P. The most ordinary Frickmadam, or Sharp-pointed yellow Housleek.
3. *SEDUM minus luteum, ramulis reflexis*. C. B. P. Yellow Stonecrop, with reflex'd Branches.
4. *SEDUM parvum acre, flore luteo*. J. B. Wall-pepper, or Stonecrop.
5. *SEDUM minus, a rupe Sancti Vincentii*. Raii Syn. Stonecrop of St. Vincent's Rock.
6. *SEDUM minus teretifolium album*. C. B. P. White - flower'd Stonecrop, with taper Leaves.
7. *SEDUM minus, circinato folio*. C. B. P. Lesser Stonecrop, with round Leaves.
8. *SEDUM majus vulgari simile, globulis decidentibus*. Mor. Hist. Housleek like the common Sort, throwing off the young ones.
9. *SEDUM montanum tomentosum*. C. B. P. Mountain woolly Housleek, commonly called Cobweb Housleek.
10. *SEDUM majus arborescens*. J. B. Greater Tree Housleek.
11. *SEDUM majus arborescens, foliis elegantissime variegatis tricoloribus*. Boerb. Ind. Greater Tree Housleek, with beautiful variegated Leaves.
12. *SEDUM Canarinum, foliis omnium maximis*. H. A. The greatest Housleek of the Canaries.
13. *SEDUM Afrum saxatile, foliis sedi vulgaris, in rosam vere compositis*. Boerb. Ind. African Rock Housleek, with small Leaves,

like the common Sort, collected like a Rose.

14. *SEDUM Afrum montanum, foliis subrotundis, dentibus albis serratis confertim natis*. Boerb. Ind. African mountain Housleek, with roundish indented serrated Leaves, with white Edges.
15. *SEDUM Africanum frutescens, folio longo serrato confertim nato*. Boerb. Ind. African shrubby Housleek, with long serrated Leaves.
16. *SEDUM majus montanum, dentatis foliis, alterum*. C. B. P. Another great mountain Housleek, with indented Leaves.
17. *SEDUM majus montanum, foliis non dentatis, floribus rubentibus*. C. B. P. The great mountain Housleek, with indented Leaves, and redish Flowers.
18. *SEDUM teretifolium majus, flore albo*. Mor. Hort. R. Blasf. Greater Housleek, with taper Leaves, and a white Flower.
19. *SEDUM minus, lato & crasso caule, Portlandicum Belgarum*. H. R. Par. Small Portland Housleek, with a broad and thick Stalk.
20. *SEDUM Alpinum roseum medium, acuto folio, hæmatodes majus*. H. R. Par. Greater bloody Rose Housleek of the Alps, with a sharp-pointed Leaf.
21. *SEDUM Alpinum roseum medium, aculeo rubente*. H. R. Par. Middle Rose Housleek of the Alps, with redish Prickles.
22. *SEDUM Alpinum roseum minus, viride & subhirsutum*. H. R. Par. Small Rose green and hairy Housleek of the Alps.
23. *SEDUM Alpinum subhirsutum, folio longiore*. H. R. Par. Hairy Housleek of the Alps, with a longer Leaf.
24. *SEDUM Alpinum subhirsutum, corana floris purpureascenti, disco viridi*

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vide. H. R. Par. Hairy Houfleeck of the *Alps*, with the Borders of a purplish Colour, and the Middle green.

25. *SEDUM minus teretifolium luteum. C. B. P.* Small taper-leav'd yellow Houfleeck.

26. *SEDUM minus teretifolium alterum. C. B. P.* Another small taper-leav'd Houfleeck.

27. *SEDUM longifolium, citrino flore. Mor. H. R. Blas.* Long-leav'd Houfleeck, with a citron-colour'd Flower.

28. *SEDUM minimum luteum, non acre. J. B.* The smallest yellow Houfleeck, which is not acrid.

29. *SEDUM minimum non acre, flore albo. Raii Hist.* The least Houfleeck, which is not acrid, with a white Flower.

30. *SEDUM Alpinum, flore pallido. C. B. P.* Alpine Houfleeck, with a pale Flower.

31. *SEDUM Alpinum, rubro magno flore. C. B. P.* Alpine Houfleeck, with a large red Flower.

32. *SEDUM Hispanum, folio glauco acuto, flore albido. Boerb. Ind. alt.* Spanish Houfleeck, with a pointed sea-green Leaf, and a whitish Flower.

33. *SEDUM palustre subhirsutum purpureum. C. B. P.* Hairy purple marsh Houfleeck.

34. *SEDUM echinatum, vel stellatum, flore albo. J. B.* Starry Houfleeck, with a white Flower.

35. *SEDUM echinatum, flore luteo. J. B.* Prickly Houfleeck, with a yellow Flower.

The first Sort is very common in *England*, being often planted upon the Tops of Houses, and other Buildings; where, being preserv'd dry, it will endure the greatest Cold of our Climate. This is directed by the College of Physicians to be used in Medicine, as a great Cooler. It

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may be propagated by planting the Off-sets (which are produced in great Plenty from the old Plants) any time in Summer. It requires to be placed very dry; for if its Roots are moist, the Plants will rot in cold Weather.

The second, third, fourth, sixth, and seventh Sorts grow in plenty upon Walls and Buildings in divers Parts of *England*, where they propagate themselves by their trailing Branches, so as, in a short time, to cover the whole Place, provided they are not cut off. The sixth Sort is also prescribed by the College of Physicians, to enter some officinal Compositions; but the People who supply the Markets, commonly sell the Wall-pepper instead of this: which is a very wrong Practice; because the sixth Sort is a very cold Herb, and is accordingly directed to be put into cooling Ointments: and the Wall-pepper is an exceeding sharp acrid Plant (from whence it received the Name of Wall-pepper), which renders it contrary to the Intention of the Physician: therefore whoever makes use of these Plants, should be very careful to have the right; otherwise it is better to use the common great Sort, in which they are not so liable to be impos'd on.

The fifth Sort is a Native of *St. Vincent's Rock* in *Cornwall*, from whence it hath been taken, and distributed into the several Gardens of such Persons as are curious in preserving a Variety of Plants.

These Plants are all extreme hardy, and will thrive exceedingly, if planted in a dry Soil, and an open Situation, where they will propagate themselves by their trailing Branches, which take Root wherever they touch the Ground.

The

The eighth and ninth Sorts propagate themselves by Off-sets, in the manner as the common Sort; tho' the eighth throws off the young ones from the Top of the old Plants, which, falling on the Ground, take Root, and thereby are increased very plentifully. These are both very hardy; and if planted in a dry rubbishy Soil, will thrive, and endure the severest Cold of our Climate.

The tenth Sort is propagated by planting Cuttings during any of the Summer-months, which should be laid in a dry Place a Fortnight after they are cut from the old Plants, that their wounded Parts may heal over before they are planted, otherwise they are subject to rot. These should be planted in Pots filled with fresh light sandy Earth, and placed in a shady Situation (but not under the Drip of Trees), observing to give them now-and-then a little Water, when the Earth is dry: but you must be very careful not to let them have too much Moisture, which will rot them.

When they have taken Root, they may be removed into a more open Situation, placing them amongst other Exotic Plants, in a Place where they may be defended from strong Winds; in which Situation they may remain until Autumn, when they must be removed into the Conservatory, to be preserved from Cold in Winter, which will destroy them. Tho' they do not require any artificial Heat, but only to be protected from Frost; yet do they require as much free Air as possible in mild Weather; therefore the best way of preserving these Plants is, to have an airy Glass-case; in which many Sorts of Ficoides, and other succulent Plants, may be intermix'd with these, where they will thrive much better than if placed amongst O-

ranges, Myrtles, and other Trees, in a Green-house; because the Perspiration of those Trees renders the Air of the Place damp; and when the House is closely shut up, this Air is often rancid; which, being imbibed by the Houseleeks, will cause their Leaves to fall off, and the Plants will decay soon after; whereas, in an open airy Glass-case, where there are none but succulent Plants, there will never be near so much Damp in the Air; and in such Places they will thrive and flower almost every Winter, when the Plants have gotten sufficient Strength. These Plants, in moist Weather, will send forth long Roots from their Branches, four or five Feet from the Ground: and if the Earth is placed near to these Roots, they will strike into it, and the Branches may be afterward separated from the old Plants.

The eleventh Sort is a Variety of the tenth, which was accidentally obtained in the Gardens of the late Duchess of Beaufort at Badmington, from a Branch which broke off from one of the plain Sort of Houseleek-trees by Accident; and being planted in Lime-rubbish afterward, became beautifully variegated; from which Plant there have been vast Numbers raised, and distributed into many curious Gardens, both at home and abroad. This is propagated in the same manner as the former, and requires the same Management in Winter: but the Soil in which it is planted should be one Half fresh sandy Soil, and the other Half Lime-rubbish and Sea-sand, equally mixed, in which it will thrive much better than in a rich Soil: you must also be very careful not to give it too much Water in Winter, which will cause it to cast its Leaves, and decay. With this Management these
Plants

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Plants will grow to be eight or ten Feet high, and will produce beautiful Spikes of Flowers every Year, which are commonly in Beauty in Winter; and are thereby more valuable, for coming at a Season when few other Plants do flower. Sometimes these Plants will produce ripe Seeds, which, if permitted to fall upon the Earth of the Pots, will come up the Summer following, from whence a great Stock of the Plants may be produced; tho' as they so easily take Root from Cuttings, there will be no occasion to propagate them any other way.

The twelfth Sort seldom produces any Side-branches, but grows up to one single large Head, with very large Leaves. This is only propagated from Seeds; for when the Plants produce their Flowers, they always decay as soon as the Seed is ripe; therefore the Seed should either be sown in Pots filled with light sandy Earth, as soon as it is ripe, or permitted to shed upon the Pots where they grow; which must be sheltered from the Frost in Winter; and the Spring following the young Plants will come up in Plenty; when they should be transplanted into Pots filled with fresh light Earth, and exposed in Summer, with other Exotic Plants, in some well-shelter'd Situation, where they may remain until *October*, when they should be hous'd with the foregoing Sorts, and managed in the same manner as hath been directed for them. These Plants will flower in four or five Years from Seed, provided they are well managed; after which (as was before said) they usually decay; therefore it is necessary to have a Succession of young Plants, that there may be annually some to flower. This Sort rather belongs to the *Saxifrage* than this Genus.

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The thirteenth and fourteenth Sorts are of a smaller Growth: these rarely rise above six Inches high; but send forth a great Quantity of Heads from their Sides; which, if taken off, and planted in fresh light sandy Earth, will take Root, and make fresh Plants, which may be preserved in Pots, and housed in Winter with the other Sorts before-mentioned, and require to be treated in the same way.

The fifteenth Sort grows to be shrubby, and may be propagated by planting the Cuttings in the manner directed for the *Tree Houfleeck*, and must also be hous'd in Winter, and treated in the same manner as hath been already directed for that Sort.

These are all of them very ornamental Plants in the Green-house, and add greatly to the Variety, when placed amongst other curious Exotic Plants.

The other Sorts of *Houfleeck* are very hardy Plants, which will thrive in the open Air in *England*; and may be easily propagated by Off-sets or Branches, which will readily take Root. Those Kinds which trail on the Ground (as many of these do), will push out Roots from their Branches, and thereby spread themselves to a great Distance: but the thirty-second, thirty-fourth, and thirty-fifth Sorts are annual Plants, which are only propagated by Seeds; but if their Seeds are permitted to scatter on the Ground, the Plants will come up in Autumn, and require no other Care, but to clear them from great Weeds, which, if permitted to grow amongst them, would overbear and destroy them.

These Plants are preserved in the Gardens of some Persons, who are curious in Botany; but are very rarely admitted into other Gardens; tho' they may be very ornamental, when
rightly

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rightly disposed; for there are no Plants so proper to plant on the Walls of Ruins, or other rustic Buildings, where they will thrive without any Trouble, and endure the greatest Drought, and are never injured by Frosts. And as there is a great Variety of Species, which differ greatly from each other, not only in their Flowers, but also in the whole Face of the Plants; so they will afford an agreeable Variety, if they are properly disposed. In planting of these Plants, there is no other Care required, but to lay a little moist Earth on the Joints of the Walls or Buildings where they are designed to grow, and therein to plant some of the Plants in small Bunches, which will soon take Root, and in one Year's time will spread to a considerable Distance. The best Season for this Work is a little before *Michaelmas*, that the Plants may be rooted before the hard Frost comes on. The annual Kinds will also grow in the same manner, and will shed their Seeds, and maintain themselves without any Trouble, when they are once fix'd in the Place. These Sorts will most of them grow from the Joints of Walls, which are perpendicular, where scarce any other Plants will live; which renders them more valuable, especially as they are so easily propagated.

The eighteenth, twenty-fifth, and twenty-sixth Sorts produce long Branches, which hang down from the Walls where they grow; therefore should be disposed near the Edges of Buildings, or on the Tops of rustic Houses, and near the Sides, where they will trail, and make a pretty Appearance.

The twenty-eighth, twenty-ninth, and thirty-second Sorts have the Appearance of the Stone-crop: these have short Branches, and small

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Leaves, producing their Flowers on the Tops of Shoots, which are seldom above three or four Inches high, but spread and form into close large Bunches; and where they scatter their Seeds, if there is but a small Share of Earth, the Plants will come up, and multiply so fast, as to cover the Top of an House in a few Years.

The sixteenth, seventeenth, nineteenth, twentieth, twenty-first, and twenty-second Sorts grow in close Heads, somewhat like the common Houfleeck, and are propagated by Off sets in the same manner: these may be disposed on the Tops of Walls and Buildings, intermixed with the common Sorts of Houfleeck, where they will make a pretty Diversity, being very different in their Appearance, and producing a great Variety in their Flowers.

SEED: The Seed of a Plant consists of an Embryo, with its Coat or Cover. The Embryo, which contains the whole Plant in Miniature, and which is called the Germ or Bud, is rooted in the *Placenta* or *Cotyledon*, which makes the Coat or *Involucrum*, and serves the same Purposes as the *Secundines*, i. e. the *Chorion* and *Amnis*, in Animals.

A Method for raising such Seeds which have hard Coats or Shells surrounding them, and that have been judged very difficult, if not impossible, to be raised in England.

In the Year 1724. I had a Parcel of fresh Cocoa-nuts given me, which was brought over from *Barbados*: Part of these Nuts I divested of their outward Coat or Husk, and the other Part I left intire, as I receiv'd them.

Both these Parcels I planted in large Pots fill'd with good fresh Earth, and plunged the Pots into Hot-beds made of Tanners Bark, giving them gentle and frequent Water.

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Waterings, as the Earth in the Pots seem'd to require; but not one out of the whole Number had made any Attempt to shoot, as I could perceive; and upon taking them out of the Pots, I found they were rotten.

About four Months after, I received another fresh Parcel of Cocoa-nuts from *Barbados*, which I treated in another manner: from Part of these I cut off the outer Coat or Husk, and the other Part I left intire, as before: but supposing it was owing to my planting the other Parcel in Pots, that they did not succeed, I made a fresh Hot-bed, with Horse-dung, and covered it over with fresh Earth about eighteen Inches thick, in which I planted the Nuts; observing, as before, to supply it with convenient Moisture, as also to keep the Hot-bed in an equal Temper of Heat, which I was guided to do by a Thermometer, graduated for the Use of Hot-beds; but, with all my Care, I had no better Success than before, not one of the Nuts making an Essay towards shooting.

The Year following, I had another Parcel of Cocoa-nuts given me, which, considering my former ill Success, I planted in a different manner, as follows:

Having an Hot-bed, which had been lately made with Tanners Bark, and which was fill'd with Pots of Exotic Plants, I remov'd two of the largest Pots, which were plac'd in the Middle of the Bed; and, opening the Tanners Bark under the Place where the two Pots stood, I plac'd the two Cocoa-nuts therein, laying them side-ways, to prevent the Moisture (which might descend from the Pots) from entering the Hole at the Base of the Fruit, and thereby rotting the seminal Plant upon its first germinating.

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I then cover'd the Nuts over with the Bark two or three Inches thick, and plac'd the two Pots over them in their former Station.

In this Place I let the Nuts remain for six Weeks; when removing the two Pots, and uncovering the Nuts, I found them both shot from the Hole in the Base of the Fruit an Inch in Length; and from the other End of the Fruit were several Fibres emitted two or three Inches in Length.

Upon finding them in such a Forwardness, I took them out of the Bark, and planted them in large Pots filled with good fresh Earth; plunging the Pots down to the Rims in Tanners Bark, and covering the Surface of the Earth in the Pots half an Inch with the same; soon after which, the young Shoots were above two Inches long, and continued to thrive very well.

I communicated this Method to some of my Acquaintance, who have tried it with the same Success; and if the Nuts are fresh, scarce any of them miscarry.

This led me to try, if the same Method would succeed as well with other hard-shell'd Exotic Seeds; which I could not, by any Method I had before tried, get to grow; as the Bonduc or Nickar-tree, the *Abrus* or Wild Liquorice, the *Phaseolus Brasiliensis lobis villosis pungentibus*, *Maximus Hermanni*, or Horse-eye Bean, with several others; and I have found it both a sure and expeditious Way to raise any Sort of hard-shell'd Fruits or Seeds.

For the Heat and Moisture (which are absolutely necessary to promote Vegetation) they here enjoy in an equal and regular manner, the Tanners Bark (if rightly manag'd) keeping near an Equality of Heat for three Months; and the Water which descends

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descends from the Pots, when they are water'd, is by the Bark detain'd from being too soon dissipated; which cannot be obtain'd in a common Hot-bed, the Earth in such being work'd away by the Water, and thereby leaving the Seeds often destitute of Moisture.

Some of these Seeds I have had shoot in a Fortnight's time; which, I am inform'd, would not have so done in a Month, in their natural Soil and Climate.

I have also found this to be an excellent Method to restore Orange (or any other Exotic) Trees, which have suffer'd by a tedious Passage, in being too long out of the Ground; insomuch that I recovered two Orange-trees, which had been ten Months without either Earth or Water.

SENECIO, Groundsel.

The Characters are;

It hath a flosculous Flower, consisting of many Florets, divided into several Segments, sitting on the Embryo, contained in an Empalement, consisting of one Leaf, and divided into many Parts, afterward becoming of a conical Figure: the Embryo afterward becomes a Seed, furnish'd with Down; at which time, the Empalement is reflex'd, to make way for the Seeds to escape.

The Species are;

1. *SENECIO minor vulgaris. C. B. P. Common Groundsel.*

2. *SENECIO Africanus altissimus, blattariae vel hieracii folio. H. L. B. Tallest African Groundsel, with a Mothmullein-leaf.*

3. *SENECIO Maderaspatanus, rapi folio, floribus maximis, cujus radix a nonnullis China dicitur. Hort. Elth. The China Root.*

4. *SENECIO Aegyptius, folio matricariae. Boerb. Ind. alt. Egyptian Groundsel, with a Feverfew-leaf.*

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5. *SENECIO Bonariensis purpurea, foliis imis coronopi. Hort. Elth. Purplish Groundsel of Buenos Ayres, with Under-leaves like Buckthorn-plantain.*

The first Sort here mention'd is one of the most common Weeds upon Dunghills, old Walls, and Gardens, that we have in *England*; so that, instead of cultivating it, it requires some Pains to destroy it in Gardens: for if it be suffer'd to seed in a Garden (which it soon will do, if permitted to stand), it will be very difficult to extirpate it. This is sometimes used in Medicine; but its chief Use in *England* is to feed Birds.

The second Sort is an annual Plant, which grows three or four Feet high; having large Leaves, which are slightly cut on the Edges. This is in plenty in the warm Parts of *America*, as well as in *Africa*: in both Places it is a troublesome Weed; but in *England* it rarely produces good Seeds, unless the Plants are rais'd on an Hot-bed; and being a Plant of no Use or Beauty, it is rarely cultivated in Gardens.

The fourth and fifth Sorts are also annual Plants: the fourth is a Native of *Egypt*, and is of humble Growth: the fifth Sort was brought from *Buenos Ayres*: this grows upward of two Feet high. Both these are very hardy Plants; and if their Seeds are permitted to scatter in a Garden, the Plants will come up, and become Weeds there.

The third Sort hath large tuberosous Roots, which are order'd for medicinal Use, under the Title of *China Root*. This is a perennial Plant, whose Roots remain several Years; but the Stalks and Leaves decay annually in the Autumn; so that the Roots remain in an unactive State all the Winter and Spring, and in *May* the new Leaves and Stalks

come

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come out; but the Flowers do not appear till the Middle of *July*; and if the Season proves favourable, the Seeds will ripen very well: however, as the Roots increase pretty fast, the Seeds are seldom sown.

This Plant is too tender to live abroad in the Winter; so the Roots must be planted in Pots filled with light rich Earth; and, during the Summer-season, the Plants may be expos'd in the open Air, with other Exotic Plants, in a shelter'd Situation; but in Winter they must be placed in a warm Stove. During the Summer-season, when the Plants are growing, they will require constant Watering in dry Weather; but after the Leaves and Stem decay, they should have but little Water; for too much Moisture will rot the Roots, while they are inactive.

The best time to part the Roots of this Plant is in the Spring, about the Middle of *April*, before they begin to shoot; but if the Stalks of the Plant are earthed up, while they are growing in the Summer-time, they will put out Roots; so that it may be propagated in plenty.

These Plants, having no great Beauty in their Flowers, are seldom admitted into Gardens, unless by those who are curious in Botanical Studies: however, the third, being a medicinal Plant, may be allowed a Place in such Gardens where there are Conveniencies for preserving Exotic Plants.

SENNA.

The Characters are;

The Flower, for the most part, consists of five Leaves, which are placed orbicularly, and expand in form of a Rose: the Pointal afterward becomes a plain incurved bivalve Pod, which is full of Seeds, each being separated by a double thin Membrane.

There are several Plants which

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have been ranged in this Genus, most of which are now plac'd under that of *Cassia*, under which Title they are mention'd; but as the officinal Species of this Genus has been long known in the Shops by the Title of *Senna*, I have chosen to continue it under that Name here; viz.

SENNA *Alexandrina, five foliis acutis.* C. B. P. *Alexandrian Senna*, with pointed Leaves.

The Leaves of this Plant are annually imported from the *Levant*, being much us'd in Medicine; and in the same Bales, there are frequently many of the Pods with their Seeds intermix'd with their Leaves: so that from these Seeds the Plants may be rais'd in *England*, by such as are curious in Exotic Plants.

The Seeds should be sown early in the Spring, upon a good Hot-bed; and when the Plants are come up, and are strong enough to transplant, they should be each planted in a small Pot fill'd with light rich Earth, and plung'd into a fresh Hot-bed, in order to bring the Plants forward: for as this is an annual Plant, unless the Plants are brought forward in the Spring, they will not flower in this Country: therefore they must be constantly kept in the Hot-bed all the Summer, observing to admit plenty of Air in warm Weather; by which Method I have frequently had this Plant in Flower; but it is very rare that they perfect their Seeds in *England*.

If the Seeds of this Plant were sent to *South-Carolina*, the Plants might be propagated there, so as to furnish plenty of the Leaves, to supply the Consumption of *Great-Britain*.

In the *West Indies*, the Inhabitants make use of the Leaves of several Species of *Cassia*, instead of this

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this Plant; and also of those of the Poinciana, or Flower-fence, which is frequently by them call'd the true Senna.

SENNA THE BLADDER. *Vide Colutea.*

SENNA THE SCORPION. *Vide Emerus.*

SENSIBLE PLANT. *Vide Mimosa.*

SEPTINERVIA. *Vide Plantago.*

SERJANIA.

This Name was given to this Genus of Plants by Father *Plumier*, who discover'd them in *America*, in Honour to the Reverend Father *Philip Serjeant*, who was of the Order of the *Minims*, and a Person well versed in the Knowledge of Botany and Physic.

The Characters are;

It hath a rose-shaped Flower, consisting of four or more Leaves, which are placed in a circular Order: from whose Flower-cup arises the Pointal, which afterward becomes a Fruit composed of three Cells having three Wings, and each Cell containing one round Seed.

The Species are;

1. SERJANIA *scandens polyphylla* & *racemosa*. *Plum. Nov. Gen.* Climbing and branching Serjania, with many Leaves.

2. SERJANIA *scandens enneaphylla* & *racemosa*. *Plum. Nov. Gen.* Climbing and branching Serjania, with nine Leaves.

3. SERJANIA *scandens, triphylla* & *racemosa*. *Plum. Nov. Gen.* Climbing and branching Serjania, with three Leaves.

These Plants were found by the late Dr. *William Houstoun*, at *La Vera Cruz* and *Campechy*; where they grow to a great Height, whenever they grow near large Trees to support them; for they have Ten-

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drils by which they fasten themselves to whatever Trees grow near them.

They may be propagated either by Seeds, or from Layers; for if their Branches are laid in the Ground in the Spring, they will make good Roots before Winter; so may be taken off from the old Plants, and planted into separate Pots.

If they are propagated by Seeds (which must be obtain'd from the Countries of their natural Growth, for they do not perfect them in *England*), they must be sown on an Hot-bed early in the Spring; and when the Plants are come up, and are fit to transplant, they should be each put into separate Pots fill'd with fresh light Earth, and plung'd into a moderate Hot-bed of Tanners Bark, observing to shade them until they have taken new Root; after which time they should have a large Share of free Air admitted to them every Day, when the Weather is warm, otherwise they will draw up too weak. As these Plants advance, their Branches must be supported by Stakes, to prevent their trailing over other neighbouring Plants; and when their Shoots are too tall to remain under the common Frames, they should be shifted into larger Pots, and plung'd into the Bark-bed in the Stove; where they must be placed on the Backside, with *Granadilla's*, and other climbing Plants; which should be supported by an *Espalier*, on which they will climb to the Top of the Stove, and make a Variety, as their Leaves always remain green.

In the Summer-season, when the Weather is warm, they should have a great Share of free Air admitted to them, by drawing down the Glasses of the Stove every Day; but they are too tender to thrive in the open Air in *England*, even in the

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Middle

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Middle of Summer; so they should be constantly kept in the Stove, where they should have a moderate Degree of Warmth in Winter; in which they will thrive better than in a greater Share of Heat.

SERPILLUM, Mother-of-thyme.

The Characters are;

It hath trailing Branches, which are not so woody and hard as those of Thyme; but in every other respect is the same.

The Species are;

1. SERPILLUM *vulgare majus*, flore purpureo. C. B. P. Greater common Mother-of-thyme, with a purple Flower.

2. SERPILLUM *vulgare minus*. C. B. P. Common smaller Mother-of-thyme.

3. SERPILLUM *vulgare, flore amplo*. Raii Syn. Common Mother-of-thyme, with a large Flower.

4. SERPILLUM *citratum*. Ger. Emac. Lemon-thyme.

5. SERPILLUM *odore juglandis*. J. B. Mother-of-thyme smelling like Walnuts.

6. SERPILLUM *vulgare hirsutum*. Raii Syn. Hairy wild Thyme.

7. SERPILLUM *latifolium hirsutum*. C. B. P. Broad-leav'd hairy wild Thyme.

8. SERPILLUM *vulgare minus, flore albo*. C. B. P. Greater wild Thyme, with a white Flower.

9. SERPILLUM *vulgare majus, folio ex albo & viridi vario*. H. L. Lesser wild Thyme, with variegated Leaves.

The eight first-mention'd Sorts grow wild upon Heaths, and other large open Places, in divers Parts of England; where, in the Summer-time, when they are in Flower, they afford an agreeable Prospect; and being trod upon, emit a grateful aromatic Scent. Their common

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Places of Growth are upon small Hillocks, where the Ground is dry and uncultivated; where, in a short time, they propagate themselves plentifully, both from Seeds, and by their trailing Branches, which take Root at their Joints, and extend themselves every way.

There are but two of these Species commonly cultivated in Gardens; viz. the Lemon-thyme, and that with striped Leaves; the first for its agreeable Scent, and the other for the Beauty of its variegated Leaves. These were formerly planted to edge Borders; but as they are very apt to spread, and difficult to preserve in Compass, they are disused at present for that Purpose.

All these propagate themselves, very fast by their trailing Branches, which strike out Roots from their Joints into the Earth, and thereby make new Plants; so that from a Root of each there may soon be a large Stock increas'd. They may be transplanted either in Spring or Autumn, and love an open Situation, and a dry undung'd Soil; in which they will thrive and flower exceedingly, and continue several Years.

It may not be improper here to take notice of a common Mistake, which generally prevails concerning this Plant; which is, that the Sheep which feed upon this Plant, afford the sweetest Mutton: whereas it is very certain, that the Sheep will not eat it; nor, so far as I have been capable of observing, is there any Animal that will, it being extremely bitter to the Taste.

SERRATULA, Saw wort.

The Characters are;

It hath a flosculous Flower, consisting of several Florets, divided into many Parts resting on the Embryo, and contained in a scaly Empalement, like

to the greater Centaury; from which this differs in having smaller Heads; and from the Knapweed, in having the Borders of the Leaves cut into small sharp Segments, resembling the Teeth of a Saw.

The Species are;

1. *SERRATULA vulgaris, flore purpureo.* C. B. P. Common Saw-wort, with a purple Flower.

2. *SERRATULA flore candido.* C. B. P. Common Saw-wort, with a white Flower.

3. *SERRATULA Virginiana, foliis rigidis.* Par. Bat. Saw-wort of Virginia, with stiff Leaves.

4. *SERRATULA præalta altera, angusto plantaginis folio.* Bocc. Mus. The tallest Saw-wort, with a narrow Plantain-leaf.

5. *SERRATULA præalta centauroides montana Italica.* Bocc. Mus. The tallest Saw-wort of the Italian Mountains, resembling Centaury.

6. *SERRATULA Noveboracensis altissima, foliis doriæ mollibus subincanis.* Par. Bat. The tallest Saw-wort of New-York, with soft Doria-leaves, which are white on the Under-side.

7. *SERRATULA annua, semine ciliari elegantissimo.* Boerb. Ind. alt. Annual Saw-wort, with Seeds furnish'd with elegant Hairs, commonly call'd *Crupina Belgarum*.

8. *SERRATULA annua, seminibus nitidissimis, ad basin compressis.* Hort. Chelf. Annual Saw-wort, with very neat Seeds, compressed at their Base.

The first and second Sorts are pretty common in the Woods, in divers Parts of England; so are seldom admitted into Gardens; but as they are Plants which will grow in the closest Shade, they may be introduc'd to plant under Trees in large Plantations; where they will thrive and flower extremely well, and add to the Variety. These Plants

are easily propagated by parting of their Roots in Autumn, so as that they may be well-rooted before Spring: otherwise they will not flower very strong the following Season.

The third and sixth Sorts are Natives of North-America, where they are very common in the Woods. These are hardy Plants, and will endure the Cold of our ordinary Winters very well; but if they are planted in the full Ground, they should have a moist light Soil; otherwise they will perish in dry Weather, unless they are duly watered. The third Sort seldom rises above two Feet high in this Country; but the sixth Sort will sometimes grow to the Height of five or six Feet, if it is planted in a moist rich Soil; but this last Sort is very late in Flowering; so that if the Season proves cold, it many times will not flower in this Country. These are both abiding Plants, which may be propagated by parting of their Roots; the best time for which is in the Spring, just before they begin to shoot; for as these continue growing in Autumn, until the Frost puts a Stop to them, it would be dangerous to transplant them in Winter.

The fourth and fifth Sorts grow wild in the mountainous Parts of Italy and Spain; but are hardy enough to resist the Cold of this Climate; so may be intermix'd with the other Sorts in Woods, or under Plantations of Trees, where they will make an agreeable Variety. These Plants may be propagated by Seeds, which should be sown early in the Spring on a Border of fresh Earth; and when the Plants appear, they should be carefully weeded, and, in very dry Weather, must be frequently water'd; which will bring them forward, and make them soon fit to transplant. When they are re-

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mov'd, they must be planted in a shady Border, about six Inches apart, and kept duly watered, until they have taken new Root; after which time they will require no farther Care, but to keep them clear from Weeds, till *Michaelmas*, when they should be transplanted where they are design'd to remain.

The seventh and eighth Sorts are annual Plants, which grow about three Feet high. The Leaves of these Plants are very curiously cut into many Segments, which are fine-sawed on their Edges: those of the eighth Sort are the most beautiful, being cover'd with an hoary Meal, and the Seeds flatted at their Base.

The Flowers of these Plants are small; so make no great Appearance; but the Seeds are closely furnish'd on their Crowns with fine soft Hairs, which expand at the Top, and appear like the Hairs of a Painter's Pencil spread open; so that when the Seeds fall on the Ground, they are moved about by the least Motion of the Air; and when they are laid upon Paper, it is difficult to close them up; for by moving of the Paper, the Seeds are apt to creep out, by their Hairs moving each other; from whence the *Dutch* have titled the Seeds *Creepers*.

If these Seeds are sown upon a Bed of light Earth in *March*, in the Place where they are to remain, they will require no other Culture, but to thin them where they are too close. In *July* they will flower, and ripen their Seeds in *September*.

SESAMUM, Oily-grain.

The Characters are;

The Flowers are produc'd from the Wings of the Leaves, without any Foot-stalk: the Flower-cup consists of one Leaf, divided into five long slender Segments: the Flower is of one Leaf, in Shape like those of the Fox-

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glove: the Pointal, which rises in the Middle of the Flower, afterward becomes an oblong four-corner'd Pod, divided into four distinct Cells, which are replete with esculent Seeds.

The Species are;

1. SESAMUM. *J. B.* Common Oily-grain.

2. SESAMUM *alterum, foliis trifidis, Orientale, semine obscuro. Pluk. Phyt.* Another Eastern Oily-grain, with trifid Leaves, and dark-colour'd Seeds.

3. SESAMUM *Orientale trifidum, flore niveo. Hort. Compt.* Eastern Oily-grain, with trifid Leaves, and white Flowers.

These three Sorts are often promiscuously cultivated in the Fields of *Syria, Egypt, Candia, &c.* where the Inhabitants use the Seeds for Food; and of late Years the Seeds of this Plant have been introduc'd in *Carolina*, where they succeed extremely well. The Inhabitants of that Country make an Oil from the Seed, which will keep many Years, and not take any rancid Smell or Taste, but in two Years becomes quite mild; so that when the warm Taste of the Seed, which is in the Oil when first drawn, is worn off, they use it as Sallad-oil, and for all the Purposes of Sweet-oil.

The Seeds of this Plant are also used by the Negroes for Food; which Seeds they parch over the Fire, and then mix them with Water, and stew other Ingredients with them; which makes an hearty Food. Sometimes a sort of Pudden is made of these Seeds, in the same manner as with Millet or Rice, and is by some Persons esteem'd; but is never used for these Purposes in *Europe*. This is call'd *Benny* or *Bonny* in *Carolina*.

In *England* these Plants are preserv'd in Botanic Gardens, as Curiosities. Their Seeds must be sown in the

the Spring upon an Hot-bed; and when the Plants are come up, they must be transplanted into a fresh Hot-bed, to bring them forward. After they have acquir'd a tolerable Degree of Strength, they should be planted into Pots fill'd with rich light sandy Soil, and plung'd into another Hot-bed, managing them as hath been directed for Amaranthus's; to which I shall refer the Reader, to avoid Repetition: for if these Plants are not brought forward thus in the former Part of the Summer, they will not produce good Seeds in this Country; though after they have flower'd, if the Season is favourable, they may be expos'd in a warm Situation with other annual Plants. When these Plants have perfected their Seeds, they decay, and never continue longer than one Season.

The Seed of the first Sort is mention'd in the List of Officinal Simples in the College Dispensatory; but is rarely us'd in Medicine in *England*. From nine Pounds of this Seed, which came from *Carolina*, there were upwards of two Quarts of Oil produc'd; which is as great a Quantity as hath been known to be drawn from any Vegetable whatever; and this, I suppose, might occasion its being call'd *Oily-grain*.

SESELI, Wild-spignel.

The Characters are;

It hath a rose and umbellated Flower, consisting of several Leaves, plac'd in a Circle, and resting on the Empalement, which afterward becomes a Fruit, compos'd of two long Seeds, which are chanelled: to these Notes must be added, That the Leaves are broader and shorter than those of Fenel.

The Species are;

1. SESELI *perenne, folio glauco brevior.* Vaill. Perennial Wild spignel, with a shorter sea-green Leaf.

2. SESELI *perenne, folio glauco longiori.* Vaill. Perennial Wild-spignel, with a longer sea-green Leaf.

3. SESELI, *quæ ferulæ facie, Thapsia sive Turbith Gallorum.* J. B. Boerb. Ind. alt. Wild-spignel with the Face of Giant-fenel, suppos'd to be the Turbith of the Gauls.

4. SESELI *quæ Saxifraga Pannonica.* Clus. Hist. Boerb. Ind. alt. Wild-spignel, or the Portugal Saxifrage of *Clusius*.

The three first Sorts are abiding Plants, whose Roots will continue several Years; but the fourth Sort is a biennial Plant, which perishes soon after it has perfected its Seeds.

These may be propagated by sowing their Seeds, which is best done in the Autumn; for when the Seeds are sown in the Spring, they frequently lie in the Ground till the next Year, before the Plants will appear; whereas those which are sown in Autumn, always rise the following Spring. These Seeds should be sown in Drills, about eighteen Inches asunder, in a Bed of fresh Earth, where they are design'd to remain; and in the Spring, when the Plants come up, they should be thinn'd where they are too close, leaving them about six Inches Distance in the Rows; after this the Plants will require no farther Care, but to keep them constantly clear from Weeds; and the second Season they will produce Seeds. These Sorts, which are permitted to remain after they have seeded, should have the Ground gently dug every Spring between the Rows, to loosen the Earth; but there should be Care taken not to injure their Roots with the Spade. The Plants love a moist Soil; for when they are sown on a dry Soil, they do not thrive near so well; and seldom perfect their Seeds,

unless the Season proves moist, or they are duly watered.

SHERARDIA.

This Name was given to this Genus of Plants by Monsieur *Vaillant*, who was Professor of Botany at *Paris*, in Honour to Dr. *William Sherard*, who was the most famous Botanist of his Age.

There have been several Plants, to which this Name has been applied by various Persons; one of which is nearly akin to the *Blites*; but that Plant has been since named *Galenia*. Another is very like the *Aparine* or *Goose-grafs*; so that there requires some other Epithet to be apply'd to distinguish each Genus. But as this Genus of Plants has been long establish'd by Monsieur *Vaillant*, I have chosen to continue it under that Title, notwithstanding Dr. *Linnaeus* has join'd this to the *Vervain*; but as these have but two Seeds, and the *Vervain* four, they may be separated.

The Characters are;

It hath a labiated Flower, consisting of one Leaf, which is divided into five Parts at the Brim; the Upper-lip being divided into two, and the Under-lip into three Parts: the Ovary, which is at the Bottom of the Flower-cup, afterward becomes a dry Capsule, containing two oblong Seeds: to these Notes may be added, That the Leaves grow opposite by Pairs.

The Species are;

1. *SHERARDIA repens nodiflora. Vaill. Nov. Gen.* Creeping Sherardia, with Flowers growing in round Heads.

2. *SHERARDIA repens, folio subrotundo crasso, nodiflora. Vaill. Nov. Gen.* Creeping Sherardia, with a roundish thick Leaf, and Flowers collected in round Heads.

3. *SHERARDIA incana nodiflora. Vaill. Nov. Gen.* Hoary Sherardia,

with Flowers collected in round Heads.

4. *SHERARDIA nodiflora, stæchadis serrati folii folio. Vaill. Nov. Gen.* Round-flowering Sherardia, with a Leaf like the sawed-leav'd *Stæchas*.

5. *SHERARDIA ocymi folio lanuginoso, flore purpureo. Vaill. Nov. Gen.* Woolly Sherardia, with a Basil-leaf, and a purple Flower.

6. *SHERARDIA teucrii folio, flore purpureo. Vaill. Nov. Gen.* Sherardia with a Tree-germander-leaf, and a purple Flower.

7. *SHERARDIA frutescens, teucrii folio, flore cæruleo purpurascente amplifimo. Vaill. Nov. Gen.* Shrubby Sherardia, with a Tree-germander-leaf, and a large purplish-blue Flower.

8. *SHERARDIA teucrii folio, flore coccineo. Vaill. Nov. Gen.* Sherardia with a Tree-germander-leaf, and a scarlet Flower.

9. *SHERARDIA spicata, folio angusto serrato, flore cæruleo. Houst.* Spiked Sherardia, with a narrow sawed Leaf, and a blue Flower.

10. *SHERARDIA spicata, flore purpureo, seminibus majoribus, longioribus, & laxius digestis. Houst.* Spiked Sherardia, with a purple Flower, and larger longer Seeds, which are loosely dispersed in the Spike.

11. *SHERARDIA verbenæ folio subrotundo crasso, floribus cæruleis, spica longissima & crassissima. Houst.* Sherardia with a thick roundish *Vervain*-leaf, and blue Flowers, growing in a very long Spike.

12. *SHERARDIA foliis oblongis serratis, flore cæruleo, spica longissima. Houst.* Sherardia with oblong sawed Leaves, a blue Flower, and a very long Spike.

13. *SHERARDIA arborescens nodiflora, foliis rugosis & serratis, flore purpureo. Houst.* Tree-like Sherardia, with rough sawed Leaves, and purple Flowers growing in a round Head.

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The first of these Plants, being a Native of *Europe*, will thrive in the open Air in this Country. The Seeds of this Kind should be sown in the Spring, on a Bed of fresh light Earth, in a warm Situation, where the Plants are design'd to remain (for they do not bear transplanting, unless the Plants are very young): and when the Plants are come up, they should be thinned, so as to leave them a Foot asunder; and if they are kept clear from Weeds, they will require no farther Care. The Branches of this Plant trail on the Ground, and send forth Roots from their Joints, whereby they may be propagated; but if they are not confin'd, they will not produce many Flowers.

All the other Sorts, being Natives of the warm Parts of *America*, are too tender to thrive in the open Air in *England*; but as most of them are annual, they may be rais'd by sowing of their Seeds on an Hot-bed; and if the Plants are brought forward early in the Spring, they will flower, and produce ripe Seeds before Winter.

The second Sort was found by Dr. *William Houstoun*, growing plentifully in *Jamaica*. This Plant trails its Branches on the Ground, and emits Roots from the Joints, as the former; therefore doth not produce many Flowers.

The fourth Sort was found in great Plenty at *La Vera Cruz*, by Dr. *Houstoun*; as were the ninth, tenth, eleventh, twelfth, and thirteenth Sorts at *Campechy*, by the same Gentleman.

The third, fifth, and sixth Sort grow plentifully in *Jamaica*, and several other Places in the *West-Indies*; from whence I have receiv'd their Seeds.

The seventh Sort is a very specious Plant, and therefore merits a

Place in every good Collection. This produces long Spikes of large blue Flowers, which continue a long time, and make a fine Appearance. This is also an annual Plant, notwithstanding it has the Epithet of Shrubby given to it; for it always flowers the same Summer it is rais'd: but if it is not brought forward early in the Spring, and constantly kept in the Stove or Glass-case, it will not perfect Seeds in this Country. The Seeds of this Kind were sent to *England* by Mr. *Robert Millar*, Surgeon, who gather'd them near *Panama*.

The thirteenth Sort rises to be nine or ten Feet high, and hath a woody Stem. This will abide many Years, provided it is preserv'd in a Stove in Winter. During the Summer-season, this Sort may be plac'd in the open Air in a warm Situation; and in hot Weather must be frequently water'd: but in Autumn, when the Nights grow cold, the Plants must be remov'd into the Stove, and in Winter they should have a moderate Share of Heat; with which Management the Plants will thrive very well.

All these Plants are propagated by Seeds, which should be sown early in the Spring on a moderate Hot-bed; and when the Plants are come up, they should be each transplanted into a separate small Pot filled with light rich Earth, and plung'd into a moderate Hot bed of Tanners Bark; observing to shade them from the Sun every Day, until they have taken new Root; after which time they should have a large Share of free Air admitted to them in warm Weather, and must be frequently water'd. When the Plants have fill'd these Pots with their Roots, they must be shifted into larger Pots; and if there is room for the Plants to grow under the Glasses of the

Hot-bed, without being scorched by the Sun, they should be plung'd into the same Bed again: but if there is not room, they must be placed in the Stove, where they may have room to grow in Height. In July those Sorts which are annual will begin to flower, and their Seeds will ripen the Beginning of September.

SICYOIDES, Single-seeded Cucumber.

The Characters are;

It hath an expanded bell-shap'd Flower, consisting of one Leaf, which is cut into several Segments at the Brim: of these Flowers, some are Male, which adhere to no Embryo; and others are Female, which rest on the young Fruit, which is afterward enlarged to the Size of an Almond-kernel, and is flat and prickly, containing one Seed of the same Shape.

The Species are;

1. SICYOIDES *Americana, fructu echinato, foliis angulatis.* Inst. R. H. American Sicyoides, with a prickly Fruit, and angular Leaves.

2. SICYOIDES *Americana, fructu echinato, foliis laciniatis.* Plum. American Sicyoides, with a prickly Fruit, and jagged Leaves.

These Plants are preserv'd in some curious Gardens, for the sake of Variety; but as they have little Beauty, and are not useful, they are not much cultivated in England. They are both annual Plants, which may be propagated by sowing their Seeds in the Beginning of April, on a Border of fresh Earth, in the Place where they are design'd to remain; and in about a Fortnight's time the Plants will appear; which at first are very like Cucumber-plants, and, as they grow, will trail on the Ground, and fasten themselves to whatever Plants grow near them, by their Tendrils; so that they should be either sown near an Hedge, where

they may climb up, or be allowed a considerable Share of room; otherwise they will run over the Plants which are near them. When the Plants are come up, they will require no farther Care, but to keep them clear from Weeds, and thin them where they grow too close together. In June they will produce their Flowers, and in August the Seeds will ripen; which, if permitted to scatter, will produce a Supply of young Plants the following Spring, without any Care.

SIDERITIS, Ironwort.

The Characters are;

It is a Plant with a labiated Flower, consisting of one Leaf, whose Upper-lip or Crest is upright, but the Under-lip or Beard is divided into three Parts: out of the Flower-cup rises the Pointal, attended, as it were, by four Embryoes, which afterward turn to so many oblong Seeds, shut up in an Husk, which was before the Flower-cup: to these Marks must be added, The Flowers growing in Whorles at the Wings of the Leaves, which are cut like a Crest, and differ from the other Leaves of the Plant.

The Species are;

1. SIDERITIS *hirsuta procumbens.* C. B. P. Hairy trailing Ironwort.

2. SIDERITIS *Alpina, hyssopi folio.* C. B. P. Hyssop-leav'd Ironwort of the Alps.

3. SIDERITIS *Orientalis, phlomis folio.* T. Cor. Eastern Ironwort, with a Phlomis-leaf.

4. SIDERITIS *Anglica, strumosa radice.* Park, Theat. English Ironwort, with a strumose Root, commonly call'd Clowns All-heal.

5. SIDERITIS *arvensis rubra.* Park, Theat. Narrow-leav'd All-heal or Ironwort.

6. SIDERITIS *foliis hirsutis, profunde crenatis.* C. B. P. Ironwor

or All-heal, with hairy crenated Leaves.

7. *SIDERITIS Hispanica erecta, folio angustiore. Inst. R. H.* Upright Spanish All-heal, with a narrow Leaf.

8. *SIDERITIS Hispanica crenata procumbens, flore albo, major. Inst. R. H.* Greater trailing Spanish All-heal, with a white Flower.

9. *SIDERITIS Hispanica bituminosa angustifolia crenata. Inst. R. H.* Spanish All-heal, with a bituminous Scent, and a narrow crenated Leaf.

10. *SIDERITIS Hispanica foetidissima glabra, flore purpurascens, & coma canescente. Inst. R. H.* Spanish stinking smooth All-heal, with a purplish Flower, and whitish Tops.

11. *SIDERITIS Hispanica frutescens, seu lignosior. Inst. R. H.* Shrubby or more woody Spanish All-heal.

12. *SIDERITIS Pyrenaica hyssopifolia minima procumbens. Inst. R. H.* The least trailing hyssop-leav'd All-heal of the Pyrenees.

13. *SIDERITIS montana, trifida folio. Barrel. Icon.* Mountain All-heal, with a trifid Leaf.

14. *SIDERITIS Cretica maxima, ocymastri Valentini facie. Tourn. Cor.* The greater All-heal of Candy, with the Face of *Ocymastrum Valentinum*.

15. *SIDERITIS Cretica tomentosa candidissima, flore lutco. Tourn. Cor.* The whitest woolly All-heal of Candy, with a yellow Flower.

The fourth Sort here mention'd grows plentifully by the Sides of Ditches, and in other moist Places, in divers Parts of England; so is very rarely introduc'd in Gardens, because it is a very bad Weed where-ever it once gets Place: for the Roots creep very far under-ground,

and will soon over-run a large Spot of Ground, if they are not confin'd. This Plant receiv'd the Name of *Clowns All-heal* from Mr. Gerard, who was looking for Herbs in Kent, where he saw a Man who had cut his Leg to the Bone with a Scythe, as he was mowing the Grass, to whom he offer'd his Assistance to cure his Wound; which the Country-man churlishly refusing, crept to the Ditch-side, where there was plenty of this Plant growing; some of which he gather'd, and bruised, and applied it to the Wound, tying it close with his Handkerchief; which in few Days healed the Wound, without any other Application; for which Reason Gerard has recorded the Story in his Herbal, for the Benefit of Mankind.

The fifth Sort is also a Native of England, and grows amongst the Corn, or other Crops on arable Land. This is an annual Plant, which perishes soon after it has ripen'd Seeds.

The other Sorts are most of them biennial Plants, which commonly perfect their Seeds the second Summer, and seldom continue much longer. These may be all propagated by Seeds, which should be sown in Autumn, soon after they are ripe; for when they are kept out of the Ground till Spring, they very often fail.

These Seeds should be sown on a Bed of fresh undung'd Earth, in an open Situation; and when the Plants come up, they should be thinned where they grow too close; and if they are kept clear from Weeds, it is all the Culture they require. If, when these Plants are establish'd in a Garden, their Seeds are permitted to scatter, the Plants will come up, and maintain their Place,

Place, provided they are not overborne by large Weeds.

All the Sorts of All-heal are suppos'd to have an astringent Quality, and are accounted good to heal Wounds, and may be applied either inwardly or outwardly.

SIDEROXYLUM, Iron-wood.

The Characters are;

The Empalement of the Flower consists of one Leaf, which is cut into five Segments: the Flower is bell-shaped, and divided into five Parts at the Brim: in the Centre of the Flower is situated the roundish Pointal, attended by five Stamina: the Pointal afterward becomes a roundish Berry, having one Cell, containing four Seeds.

The Species are;

1. **SIDEROXYLUM inerme**. Lin. Hort. Cliff. Smooth Iron-wood.

2. **SIDEROXYLUM foliis lanceolatis ex adverso fitis**. Iron-wood with spear-shap'd Leaves growing opposite.

3. **SIDEROXYLUM spinosum**. Lin. Hort. Cliff. Prickly Iron-wood.

The Wood of these Trees being very close and solid, has given occasion for this Name being applied to them, it being so heavy as to sink in Water; and the Title of Iron-wood having been apply'd to the Wood, by the Inhabitants of the Countries where it grows, has occasion'd the Botanists to constitute a Genus by this Name. But as the Characters of the Plants have not been so well examin'd as could be wish'd, occasion'd by their not flowering in Europe, it is very probable, that the three Species here mention'd may not agree in every Part; as I think the third will not: for in some dried Samples of the Tree, which I have receiv'd from America, it appears, that this is Male and Female in different Plants, which

the others are not: but as this Plant has been joined to them by other Botanists, I have chosen to continue it here, as I have not been able to examine the Characters myself.

These Plants are Natives of warm Countries; so cannot be preserv'd in England, unless they are placed in a warm Stove. They are propagated by Seeds, when these can be procured from abroad. These must be sown in Pots fill'd with rich light Earth, and plung'd into a good Hot-bed in the Spring, in order to get the Plants forward early in the Season. When the Plants are fit to transplant, they should be each put into a separate small Pot filled with good Earth, and plung'd into a fresh Hot-bed. In the Winter they must be plung'd into the Tan-bed in the Stove, and treated in the same manner as hath been directed for several tender Plants from the same Countries. As the Plants obtain Strength, they may be treated more hardily, by placing them in the dry Stove in the Winter, and giving them a greater Share of free Air in Summer; but they must not be placed abroad; for they are too tender to live in the open Air in the Summer-season in England.

The first and second Sorts I have propagated by Layers; but these were two Years before they had made good Roots: and sometimes they will take from Cuttings; but this is a very uncertain Method of propagating them: nor do the Plants so rais'd ever grow so vigorously as those which come from Seeds; so that when those can be procur'd, it is the best Method to propagate them.

The first Sort hath large oval Leaves, shaped somewhat like those of the Bay-tree; but smoother, and blunter at the End. These are placed

ced on the Branches without Order ; as the Branches also are produc'd. This rarely flowers in England ; but the Leaves continue all the Year green.

The second Sort grows more upright and regular ; the Leaves, which are smaller, and more pointed, than those of the first, are plac'd opposite on the Branches ; and these continue green through the Year.

The third Sort has pennated Leaves, which are somewhat like those of the Mastich-tree ; and the Branches are armed with Spines, which are produc'd in Clusters, and are small. The Leaves of this Tree fall off in the Spring, a little before the new Leaves appear, when the Flowers come out ; but it has not produc'd any Flowers in England.

SIGESBECKIA.

The Characters are ;

It hath compound Flowers, which have an Empalement compos'd of five narrow Leaves, which spread open, and extend beyond the Flower : the Hermaphrodite Flowers are tubulous, which are plac'd on the Disk : the Female Flowers, which are situated on the Border, are stretch'd out like a Tongue : each of these are succeeded by one oblong narrow black Seed, which is inclosed in the Empalement.

We have but one Species of this Genus ; viz.

SIGESBECKIA. *Lin. Hort. Cliff.* Sigesbeckia. We have no English Name for this Plant : this here mention'd was apply'd to it by Dr. Linnæus, in Honour to Dr. Sigesbeck, who was Professor of Botany at Petersburg.

This Plant is an Annual, perishing at the Approach of Winter. The Seeds of it were brought from the East-Indies, where it is a troublesome Weed ; but in England it will not produce ripe Seeds, unless the Plants

are rais'd on an Hot-bed, and brought forward in the Spring : then they may be planted out in warm Borders the Beginning of June : and if they are supply'd with Water in dry Weather, they will grow near four Feet high, and send out many Branches. The Flowers are produc'd at the Extremity of the Shoots, which are small, and of a yellow Colour ; so make no great Appearance ; therefore it is only preserv'd in the Gardens of those Persons who are curious in the Study of Plants.

SILAUM, Meadow-saxifrage.

The Characters are ;

It hath a rose and umbellated Flower, consisting of several Leaves, placed circularly, and resting upon the Empalement, which afterward becomes a Fruit compos'd of two short channell'd Seeds : to which Notes must be added, That the Leaves are very narrow, and the Flowers are of a pale-yellow Colour.

The Species are ;

1. SILAUM quibusdam, flore luteo. *J. B.* Common Meadow saxifrage.

2. SILAUM quod ligusticum, ferula folio. *Inst. R. H. Boerb. Ind. alt.* Saxifrage with the Leaf of Giant-fenel.

3. SILAUM quod ligusticum Creticum, folio fœniculi, caule nodofo. *Tourn. Cor. Boerb. Ind.* Candy Meadow-saxifrage, with a Fenel-leaf, and a knobby Stalk.

4. SILAUM quod ligusticum, cicuta folio, glabrum. *Tourn. Boerb. Ind. alt.* Meadow-saxifrage, with a smooth Hemlock-leaf.

The first Sort is directed by the College of Physicians to be us'd in Medicine : this grows wild in Meadows, and other moist Pastures, in divers Parts of England ; but the other Sorts, not being Natives of this Country, are only to be met with in

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Botanic Gardens; where they are preserv'd for the sake of Variety.

All these Sorts are propagated by Seeds, which may be sown in Autumn on a Border of fresh Earth in a shady Situation; and when the Plants are come up, they will require no farther Care, but to keep them clear from Weeds; and, where they grow too close, to thin them, so as to leave them about eight or ten Inches asunder; which may be done by hoeing them, in the same manner as is practis'd for Carrots. These Plants will flower and seed the second Summer, and the Roots of the three first Sorts will abide some Years; but the fourth Sort commonly perishes soon after it has produc'd Seed.

SILER, Sefeli or Sermountain.

The Characters are;

It hath a rose and umbellated Flower, consisting of several Leaves, which are ranged orbicularly, and rest on the Empalement, which becomes a Fruit composed of two large oblong furrowed Seeds, having foliaceous Ridges on one Side: to these Notes may be added, That the Lobes of the Leaves are large, long, and intire, excepting their Extremity, where they are slightly cut into three Parts.

The Species are;

1. SILER *montanum majus*. Mor. Umb. Greater Sermountain.

2. SILER *montanum angustifolium*. Park. Narrow-leav'd Sermountain.

The first Sort is used in Medicine, by the Direction of the College of Physicians. The Seeds of this Sort are the *Semen Sefeleos* of the Shops, which enters in Compositions; and the green Herb is also used; for which some of the People, who supply the Shops, often impose on their Customers the Mountain Osier, which, by translating *Siler* an Osier, may afford them some Pretence.

The second Sort differs from the first, in being somewhat less, and having narrow Leaves: this is found wild in *Austria*, and the former Sort grows on the *Alps* and *Apennines*, and other mountainous Parts of *Italy* and *Spain*.

These Plants may be propagated by Seeds, which should be sown in Autumn, soon after they are ripe, on a Border of fresh undung'd Earth; and in the Spring, when the Plants will appear, they should be kept constantly clear from Weeds; and in very dry Weather should be watered, which will greatly promote their Growth. Where the Plants come up too close together, they should be thinned, so as to leave them three or four Inches apart; which will be sufficient room for them the first Season: and at *Michaelmas*, when their Leaves decay, some of the Plants may be carefully taken up, so as not to cut or break their Roots, and transplanted into a moist shady Border, about eighteen Inches asunder, where they may remain for Continuance. If these Plants thrive well, they will produce Seeds the second Season; otherwise it will be the third Summer before they flower and seed; after which the Roots will abide many Years, and greatly increase in their Size, and will produce Seeds every Year.

The Culture which these Plants require, is only to keep them clear from Weeds; and every Spring, just before the Plants put out their Leaves, to dig the Ground between them gently, so as not to injure their Roots; and when their Flower-stems are advanced, to place some Sticks down by them, to which their Stems should be fastened with Bais, to support them from being broken down by Winds; for as these Stems rise to the Height of four or five Feet,

so, when their Umbels of Seeds are formed, which are generally pretty large and heavy, they often occasion their Stems falling to the Ground, where they are not supported.

These Plants flower the Latter-end of June; and their Seeds ripen toward the Latter-end of August, or the Beginning of September.

SILIQUA. *Vide* Ceratonia.

SILICUASTRUM. *Vide* Cercis.

SILPHIUM, Shrubby Bastard Chrysanthemum.

The Characters are;

It hath a compound Flower, composed of several Florets, which are included in one common scaly Empalement; those Florets in the Middle being Hermaphrodite, which are funnel-shaped, and indented at the Brim: but the Border is occupied by Female Florets, which compose the Rays: the Hermaphrodite Flowers are barren; but the Female Flowers have each one membranaceous Seed succeeding them, which is shut up in the Empalement.

The Species are;

1. SILPHIUM *fruticosum, leucoii foliis viridibus & splendidibus.* Shrubby Bastard Chrysanthemum, with a green shining Stock-gillflower-leaf.

2. SILPHIUM *fruticosum, leucoii foliis sericeis & incanis.* Shrubby Bastard Chrysanthemum, with a white silky Stock-gillflower-leaf.

3. SILPHIUM *fruticosum angustifolium & incanum.* Shrubby Bastard Chrysanthemum, with a narrow hoary Leaf.

4. SILPHIUM *fruticosum humile, foliis leucoii latioribus minus incanis.* Dwarf Shrubby Bastard Chrysanthemum, with broad Stock-gillflower-leaves, which are less hoary.

5. SILPHIUM *herbaceum, coronæ folis facie.* Bastard herbaceous Chrysanthemum, with the Appearance of Sunflower.

These Plants are Natives of *America*: the first, third, and fifth Sorts I received from *South-Carolina*; but the second Sort, which has been long in *England*, came from *Virginia*: this grows much taller than either of the other Sorts, rising to the Height of ten or twelve Feet, with many slender Branches, which are garnish'd toward their Tops with whitish silky Leaves: the Flowers are produced at the Ends of the Shoots, which are yellow: these make no great Appearance; so that the Plant is kept for the sake of Variety, more than for its Beauty: this is too tender to live in the open Air in *England*; therefore it must be kept in Pots, and placed in the Green-house in Winter, with Myrtles, Olives, and the hardier Sorts of Green-house Plants, where it may have as much free Air as possible in mild Weather, otherwise the Shoots will draw up weak, and render the Plants unfightly: this Sort is apt to put out Suckers from the Root, by which it may be propagated in plenty; as also by Cuttings, which will easily take Root, if planted, during any of the Summer-months, in a shady Border.

The fourth Sort is also hardy enough to live in the Green-house in Winter, and may be treated in the same manner as the former: this creeps very much at the Root, and sends up a great Number of young Plants, which fill the Pots; which should be frequently taken off, otherwise they will draw away the Nourishment from the old Plant, and starve it: this Sort seldom grows more than three or four Feet high; the Leaves are broader and greener than those of the third Sort, and are not so thick. Father *Plumier* calls this Plant *Corona solis frutescens, laureolæ folio,*

folio, in his Catalogue of *American Plants*: the Seeds of this Plant were sent me from *La Vera Cruz*, by the late Dr. *William Housfoun*.

The first and second Sorts are shrubby Plants, but of humbler Growth than either of the former: these never rise above two Feet high in *England*, and produce many Branches on every Side the Stem; but do not put out Suckers as the two former Sorts: the Leaves of the first Sort are narrow, and very thick, being full of Juice, and covered over with a mealy Powder, so as to be very white: the Flowers are yellow, which are produced at the Extremity of the Branches; these are larger than those of the other two Sorts; and the Plants growing regular, and in less Compass, it deserves a Place among other Exotic Plants.

The Leaves of the first Sort are much broader, and are very succulent, of a shining-green Colour; the Branches of this are succulent, and never become so woody as those of the second: the Flowers are somewhat larger; but of the same Shape and Colour as those of that Sort.

These Plants grow in *South-Carolina*, and also in the *Bahama-Islands*, from whence I have received their Seeds; but these are much tenderer than the other Sorts; so will not live through the Winter in *England*, unless they are placed in a warm dry Green-house; for if they are placed in a moist damp Situation, their succulent Branches become mouldy, and rot off in Winter; so that I have always found, that these Plants succeed best, when they are placed in a dry airy Glass case, where there is Conveniency of Fires, in very cold, frosty, or damp Weather, to dry and warm the Air.

These are propagated by Cuttings

during any of the Summer-months; but these should be planted in Pots, and plunged into a moderate Hot-bed, to promote their putting out Roots.

The fifth Sort is herbaceous: this hath an annual Stalk, and a perennial Root: the Shoots rise near three Feet high, when they grow in a moist rich Soil, and produce their Flowers at the Top, which are shaped like those of the small Sunflower: these appear the Latter-end of *July*, and continue till *September*: the Plants are hardy; so will thrive in the full Ground, and may be propagated by parting of the Roots in *October*: this grows in *Virginia* in the Woods.

These Plants have been ranged under the Genus of *Asteriscus*, by some Writers, and by others, under that of *Corona solis*; but Dr. *Linnaeus* has taken them away from both, and constituted a Genus for them by this Title of *Silphium*; therefore I have given the *English* Name of Bastard Sunflower to it.

SINAPI, Mustard.

The Characters, are;

The Flower consists of four Leaves, which are placed in form of a Cross; out of whose Flower-cup rises the Pointal, which afterward becomes a Fruit or Pod, divided into two Cells by an intermediate Partition, to which the Valves adhere on both Sides, and are fill'd with roundish Seeds: these Pods generally end in a fungous Horn, containing the like Seeds: to these Marks must be added, An acrid burning Taste, peculiar to Mustard.

The Species are;

1. SINAPI *filiqua latiuscula glabra, semine rufo, sive vulgare.* J. B. Common or Red Mustard.
2. SINAPI *bortense, semine albo.* C. B. P. Garden or White Mustard.

3. SINAPI *Indicum, lactuæ folio.*
Par. Bat. Indian Mustard, with a
Lettuce-leaf.

4. SINAPI *arvense præcox, semine nigro.* Mor. Hist. Early Field Mustard, with a black Seed.

5. SINAPI *Hispanicum pumilum album.* Inst. R. H. Low white Spanish Mustard.

6. SINAPI *Hispanicum, nasturtii folio.* Inst. R. H. Spanish Mustard, with a Cress-leaf.

The first Sort is very common in the *Isle of Ely* in *Cambridgeshire*, and in many other Places, where the Land has been flooded with Water for many Years; but upon being drained, this Plant comes up in a most plenteous manner; which has given Occasion for some Persons to imagine, that it was produced spontaneously without Seeds; but the contrary of this has been fully proved by several learned Gentlemen, and therefore would be needless to repeat here; for the Reason why these Seeds remain good for so many Years, when cover'd with Water, is, because they abound with so sharp an Oil, that it prevents the Water from prevading its Body; and, being kept from the Air, is preserved from Corruption.

This Sort is also cultivated in Gardens, as a Sallad-herb, by some Persons; tho' in general the Sort with white Seeds is preferr'd to it for this Purpose; and in Fields, in divers Parts of *England*, for the sake of its Seeds. The Method of cultivating this Plant is, to sow the Seeds upon an open Spot of Ground, which has been well dug or plow'd, in the Spring; and when the Plants are come up, they should be hoed, in order to destroy the Weeds, as also to cut out the Plants where they are too thick, leaving them about ten Inches asunder; for when they are

left too thick, they draw up weak, and the Seeds are never so large, and well nourished; and if the Weeds should grow again before the Plants have gotten Strength enough to bear them down, they must be hoed a second time; after which they will require no farther Care, until the Seeds are ripe, when the Haulm should be cut down, and spread upon the Ground to dry; but it must not lie long on the Ground; for the Pods will soon open, and let out the Seeds, especially after a Shower of Rain, if the Sun shines warm; therefore the Seeds should be thresh'd out as soon as possible.

The second Sort is chiefly cultivated in Gardens, for a Sallad-herb in the Winter-season. The Seeds of this are commonly sown very thick in Drills, either upon a warm Border, or in very cold Weather upon an Hot-bed, with Cresses, and other small Sallad-herbs, which are commonly fit for Use in ten Days or a Fortnight from sowing; for if they are large, they are too strong to put into Sallads. In order to save the Seeds of this Plant, a Spot of Ground must be sown with it in the Spring, which should be managed in the same manner as the former.

The third Sort may also be used in Sallads, when it is very young, at which time it has no disagreeable Taste; but as it grows large, so its Strength increases, and a certain Bitterness, which renders it very disagreeable. This is very hardy, and, when allow'd sufficient room, will spread very far, and produce large Leaves. This Sort is eaten by the *Chinese*, as a boiled Sallad-herb; and the Seeds have been frequently brought to *Europe*, for an esculent Herb.

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The Seeds of the two first Species are order'd for medicinal Use ; but the third Sort is seldom cultivated for Use in England.

The fourth Sort is a pretty common Weed on arable Lands, in most Parts of England: this comes up early in the Spring, among the Corn; so flowers and seeds in May: therefore where it is not weeded out, the Seeds will scatter long before the Corn is ripe, and the Ground will be stock'd with the Weed: the Leaves of this Sort are large, and, for the most part, intire: the Flowers are yellow; and it is generally taken for Charlock, by most Country-people.

It is from the Seeds of this Sort that the *Durham* Flower of Mustard-seed is made; and it is there cultivated for this Purpose.

The fifth and sixth Sorts are preserved in the Gardens of some Persons, who are curious in Botany, for the sake of Variety; but they are not cultivated for Use.

SINAPISTRUM, Bastard Mustard.

The Characters are;

The Flower consists of four Leaves, which are placed in form of a Cross, but are erected: under these Petals are placed six Stamina, which occupy the under Part of the Flower; out of whose Flower-cup rises the Pointal; which afterward becomes a cylindrical Pod, with two Valves, and fill'd with roundish Seeds.

The Species are;

1. **SINAPISTRUM** *Indicum pentaphyllum, flore carneo, minus non spinosum. H. L.* Indian five-leav'd Sinapistrum, with a flesh-colour'd Flower, and not prickly.

2. **SINAPISTRUM** *Aegyptiacum heptaphyllum, flore carneo, majus spinosum. H. L.* Greater prickly seven-

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leav'd *Egyptian* Sinapistrum, with a flesh-colour'd Flower.

3. **SINAPISTRUM** *Zeylanicum triphyllum & pentaphyllum viscosum, flore flavo. Boerb.* Three and five-leav'd viscous Sinapistrum from *Ceylon*, with a yellow Flower.

4. **SINAPISTRUM** *Lustanicum triphyllum, flore rubro, filiquis corniculatis. H. L.* Three-leav'd *Portugal* Sinapistrum, with an horned Pod.

5. **SINAPISTRUM** *Orientale triphyllum, ornithopodii filiquis. Tourn. Cor.* Three-leav'd Eastern Sinapistrum, with Birds-foot-pods.

The first and second Sorts are very common in *Jamaica*, *Barbados*, and other warm Countries in the *West-Indies*; but the third Sort I received from Dr. *Boerhaave*, who had it from *Ceylon*, with many other curious Seeds.

These Plants are preserved as Curiosities by those who delight in Botanic Studies; but as they are not very beautiful, nor of any great Use, they are rarely cultivated in other Gardens. They are annual Plants, which perish soon after their Seeds are ripe; and in *England* must be raised in an Hot-bed in the Spring; and when the Plants have acquired Strength, they should be planted into Pots, and managed as hath been directed for the Female Balsamines; to which Article the Reader is directed to turn, to avoid Repetition. In *July* these Plants may be placed in the open Air, at which time they will flower; and in *September* their Seeds will ripen; when they should be gather'd, and preserv'd in their Pods, until the Season for sowing them.

The fourth and fifth Sorts will thrive in the open Air; so the Seeds of this may be sown on a Bed of light Earth in *April*, where the Plants are to remain; and will require no other

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other Culture, but to keep them clear from Weeds: in *June* they will flower, and the Seeds will ripen in *August*; and the Plants will soon after perish.

SISARUM, Skirret.

The Characters are;

It produces its Flowers in an Umbel, which consist of several Leaves placed circularly, and expand in form of a Rose: the Empalement afterward becomes a Fruit, composed of two narrow Seeds, that are gibbous and furrow'd on one Side, but plain on the other: to these Marks must be added, That the Roots are shaped like long Turneps, and are joined to one Head.

We have but one Species of this Plant; viz.

SISARUM Germanorum. C. B. P. Skirret.

This is one of the wholsomest and most nourishing Roots that is cultivated in Gardens; and yet it is at present very rare to meet with it in the Gardens near *London*: what may have been the Cause of its not being more commonly cultivated, I can't imagine, since there are many Kitchen-gardens which are proper for this Plant.

It may be propagated two ways; viz. either by sowing the Seeds, or planting the Slips. The former Method is what I would chiefly recommend; because the Roots which come from Seeds are much larger than those produced from Off-sets, and are much tenderer. The Season for sowing the Seed is in the Beginning of *April*, and upon a moist rich Soil, which should be well dug and loosened; and being laid level, the Seeds should be sown thereon, and then trod in, after the common Method of sowing Radishes, raking the Ground over them smooth.

In *May* the Plants will come up, at which time the Ground should be

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hoed over, as is practised for Carrots, to destroy the Weeds, and to cut out the Plants where they are too close, leaving them the first Hoeing about three Inches asunder; but at the second Hoeing, which should be performed about a Month after the first, they should be cut out to six Inches apart at least, observing to cut down all the Weeds; and, during the Summer-season, the Weeds should be diligently hoed down, as fast as they are produc'd; for if these Plants are stifled by Weeds, &c. they seldom come to good.

When their Leaves are decay'd, their Roots may be taken up for Use; but this should be done only as they are wanted; for if they are kept long above-ground, they will be good for little. The Leaves commonly decay in *October*; so that from that time, till the Beginning of *March*, when they begin to shoot again, they are in Season; but after they have shot forth green Leaves, the Roots become sticky, and are not so good.

The Method of propagating this Plant from Off-sets is as follows: About the Latter-end of *February*, or Beginning of *March*, you should dig a moist rich Spot of Ground, in Size proportionable to the Quantity of Plants intended; then you should carefully dig up the old Roots, from which you should slip off all the Off-sets, preserving their Buds on the Crown of each intire; after this you should open a Drill cross the Spot of Ground with a Spade, in a strait Line, about eight or nine Inches deep; into which you should place the Off-sets, about six Inches apart, as upright as possible; then fill the Drill up again with the Earth which came out of it; and at a Foot Distance from the first, make another Trench, laying the Off-sets therein,

as before; and so continue the Drills at a Foot Distance, thro' the whole Spot of Ground; and if the Season should prove very dry, it will be proper to water them until they have taken Root in the Ground; after which they will require no other Care, but to keep the Weeds constantly destroyed as they are produced, in the manner before directed for the seedling Plants; and when their Leaves decay, they will be fit for Use, as before; but after any of these Roots have seeded, they are sticky, and good for nothing; so that the Off-sets should never be taken from Plants more than one Year old.

SISYMBRIUM, Water-creffes.

The Characters are;

It hath a Flower composed of four Leaves, which are placed in form of a Cross; out of whose Empalement rises the Pointal, which afterward becomes a Fruit or Pod, which is divided into two Cells, by an intermediate Partition; to which the Valves adhere on both Sides, and furnished with Seeds that are roundish: to these Marks must be added, That the whole Appearance of the Plants is peculiar to the Species of this Genus.

The Species are;

1. *SISYMBRIUM aquaticum. Matth.* Common Water-creffes.

2. *SISYMBRIUM aquaticum, foliis minoribus, præcocius. Raii Syn.* Early-flowering Water-creffes, with smaller Leaves.

3. *SISYMBRIUM aquaticum, raphani folio, siliqua breviori. Inst. R. H.* Water-radish.

4. *SISYMBRIUM aquaticum, foliis in profundas lacinias divisis, siliqua breviori. Inst. R. H.* Water-radish with deeply jagged Leaves.

5. *SISYMBRIUM palustre repens, nasturtii folio. Inst. R. H.* Water-rocket.

6. *SISYMBRIUM palustre minus,*

siliqua aspera. Inst. R. H. The lesser Marsh-rocket, with a rough Pod.

7. *SISYMBRIUM erucæ folio glabro, flore luteo. Inst. R. H.* Common Winter-crefs.

8. *SISYMBRIUM erucæ folio glabro, flore pleno. Inst. R. H.* Winter-crefs with a double Flower.

9. *SISYMBRIUM erucæ folio glabro, minus & præcocius. Inst. R. H.* Small early-flowering Winter-rocket

10. *SISYMBRIUM erucæ folio aspero, flore luteo. Inst. R. H.* Winter-crefs with a rough Rocket-leaf, and a yellow Flower.

The first and second Sorts of Water-creffes grow promiscuously in standing Waters in most Parts of England, and are indifferently gathered for Use. These Plants have of late Years been generally used as Sallad-herbs in the Spring of the Year, and are by many People preferred to all other Sorts of Sallads, for the agreeable warm bitter Taste; and being accounted an excellent Remedy for the Scurvy, and to cleanse the Blood, as also a good Diuretic, they have generally obtained with most People. These are generally gathered in the Ditches, and in other standing Waters near London, to supply the Markets; but whoever hath a mind to cultivate them, may easily do it, by taking some of the Plants from the Places of their natural Growth, early in the Spring, being careful to preserve their Roots as intire as possible, and plant them into Mud, and then let the Water in upon them by degrees. When they have taken Root, they will soon flourish, and spread over a large Compass of Water: they should not be cut the first Season, but suffered to run to Seed, which will fall into the Water, and furnish a sufficient Supply of Plants afterward.

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But where the Water is so deep, that it will not be easy to plant them, the best Method will be to get a Quantity of the Plants, just as their Seeds are ripening, and throw them on the Surface of the Water, where they are design'd to grow; and their Seeds will ripen, and fall to the Bottom, where they will take Root, and produce a Supply of the Plants. These Plants produce Seed the latter-end of *June*, or the Beginning of *July*, which is the proper Time for this Work.

The third, fourth, fifth, and sixth Sorts are Water-plants, which grow in standing Waters; but are not admitted into Gardens, except for the sake of Variety.

The seventh and ninth Sorts grow wild on dry Banks in several Parts of *England*: these were formerly used as a Winter Sallad; but since there have been a great Number of other Herbs introduced into the *English* Gardens, they have been intirely rejected. These may be propagated by Seeds, which should be sown soon after they are ripe; and when the Plants are come up, they should be hoed, to separate them where they are too close, as also to destroy the Weeds, which is all the Culture they require. The Summer following they will produce Seed, and the Plants perish soon after. But if the Seeds are permitted to scatter, the Plants will come up, and become troublesome Weeds.

The eighth Sort is a Variety of the seventh, which accidentally arose from Seeds; and is preserved in some curious Gardens, for having a double Flower. This is propagated by parting the Roots; so that in order to preserve the Kind, the Plants should not be suffered to send forth too many Flower stems, lest they should

exhaust the Root too much to send forth any Side-heads for parting. The best time to transplant and part these Roots is at *Michaelmas*, when they should be planted into a Bed or Border of fresh undunged Earth, in an open Exposure.

The tenth Sort is very like the seventh, from which it differs in having a rough Leaf; but may be cultivated in the same manner; tho' these are rarely allowed a Place in any Gardens, unless for the sake of Variety.

SISYRINCHIUM, *Spanish Nut*.

The Characters are;

It hath a Flower resembling the Iris, from which it differs in having a double Root, one lying over the other, after the same manner as those of the Crocus and Gladiolus.

The Species are;

1. SISYRINCHIUM *majus, flore lutea macula notato*. C. B. P. Greater *Spanish Nut*, with a Flower mark'd with a yellow Spot.

2. SISYRINCHIUM *majus, flore alba macula notato*. C. B. P. Greater *Spanish Nut*, with a Flower mark'd with a white Spot.

3. SISYRINCHIUM *medium*. C. B. P. Middle *Spanish Nut*.

4. SISYRINCHIUM *Creticum montanum, angustissimo folio*. Tourn. Cor. Mountain *Sisyrrinchium* of *Candy*, with a very narrow Leaf.

5. SISYRINCHIUM *Africanum, foliis longissimis, flore albo, radice venenata*. African *Sisyrrinchium*, with very long Leaves, a white Flower, and a poisonous Root.

The three first Sorts grow wild in *Portugal* and *Spain*, where the Roots are sought after, and dug up by Children, and the Shepherds, who eat them, as also the Hogs; for they are sweet, and in Taste resemble the *Earth-nut*. The fourth Sort was

discovered in the Island of *Crete* by Dr. *Tournefort*, who sent it to the Royal Garden at *Paris*.

These Plants are preserved by the Curious, for the sake of Variety; for they make no great Appearance: the time of their flowering is commonly in *May*, or the Beginning of *June*, about the same time with the Bulbous Iris: the Flowers come out alternately from their Sheaths or Coverings, after the manner of the Iris; so that there is seldom more than one Flower open upon each Stalk at one time; but they succeed each other; for there are commonly four or five Flowers produced on each Stalk, when the Roots are strong: these Flowers are in some of a fine blue Colour, spotted with yellow; and in other Sorts they are of a pale-purple Colour, spotted with White: but the Flowers seldom continue a whole Day open; but close up when the Sun is warm.

The four first Sorts are hardy Plants, which are multiplied by Off-sets, and may be treated in the same manner as the Bulbous Iris; to which the Reader is desired to turn; where there are full Directions exhibited, both for the propagating them by Off-sets and Seeds; with which Management these Flowers may be cultivated.

The fifth Sort was brought from *Africa*, where the Inhabitants use the Root to fuddle the Fish in the Rivers, in order to catch them in plenty. The green Leaves of this Sort are poisonous; for as a Tub of these Plants, which were bringing to *England*, was plac'd on the Deck of the Ship, some Hogs, getting to it, eat down all the Leaves; which swelled two of the Hogs, and killed them.

This Plant, being a Native of a

warm Country, is too tender to live in this Climate, unless it is preserved in a good Stove; for which Reason the Roots should be planted into Pots filled with light rich Earth, and plunged into the Bark-bed in the Stove; which if it is preserved in a kindly Warmth, the Roots will greatly multiply. The Leaves of this Sort die away in Winter, and new ones arise in the Spring: wherefore the best time to transplant the Roots is, just before they put out new Leaves, which is commonly in the Beginning of *April*; at which time the Bark-bed should be stirred up, and renewed with some fresh Tan; and the Pots must be plunged again, and frequently refreshed with Water in warm Weather; which will make them grow very vigorous: but during the Winter-season, while the Leaves are decay'd, they must not have much Wet, lest it rot the Roots. Altho' this Plant thrives very well in *England*, yet it has but once flowered here; and then but one Flower appeared, which soon decayed.

SIUM, Water-parfnep.

The Characters are:

It hath a rose-shaped umbellated Flower, consisting of several Petals, which are commonly equal, and placed orbicularly, resting upon the Empalement; which afterward becomes a roundish Fruit, composed of two Seeds, which are gibbous and furrowed on one Side, but plain on the other: to these Notes must be added, That the Leaves are joined together, and adhere to the Rib, with an odd Lobe at the End.

The Species are;

1. SIUM *five Apium palustre, foliis oblongis.* C. B. P. Water-parfnep, with oblong Leaves.

2. SIUM *umbellatum repens.* Ger. Emac. Creeping Water-parfnep.

3. SIUM

3. *SIUM latifolium*. C. B. P. Broad-leav'd Water-parsnep.

4. *SIUM palustre alterum, foliis ferratis*. Inst. R. H. Another Water-parsnep, with sawed Leaves.

5. *SIUM foliorum conjugationibus laciniatis*. Inst. R. H. Water-parsnep with the Wings of the Leaves jagged.

6. *SIUM aquaticum, ad alas floridum*. Mor. Umb. Water-parsnep with Flowers growing at the Wings of the Leaves.

7. *SIUM minimum umbellatum, foliis variis*. Pluk. Alm. The least Water-parsnep, with variable Leaves.

8. *SIUM alterum, olusatris facie*. Lob. Icon. Long-leav'd Water-hemlock.

9. *SIUM arvense, sive segetum*. Inst. R. H. Corn-parsley or Honewort.

10. *SIUM aromaticum, Sison officinarum*. Inst. R. H. Stone-parsley, or German Anomum.

The first, second, third, seventh, and eighth Sorts grow pretty common in Ditches, Ponds, and other standing Waters, in divers Parts of England; but are not cultivated, because they will not live on dry Ground. The second Sort is directed to be used in Medicine by the College of Physicians, and is esteemed very good in scrophulous Cafes. The first Sort is by some People mistaken for Water-creffes, and is sometimes gathered as such, and eaten, tho' they are very different Plants.

The eighth Sort is a very poisonous Plant, which was by Dr. Wepfer taken for the Hemlock of the Antients; who has written a Treatise of this Plant, in which he has mentioned a Number of Instances of the noxious Quality thereof: so that it should be extirpated from Places near Habitations, in order to pre-

vent any Mischief which may happen by Persons using it thro' Ignorance.

The fourth, fifth, and sixth Sorts grow in standing Waters in France, Germany, and some other Parts of Europe; but are not Natives of this Country. These are sometimes preserved in Botanic Gardens, for Variety-sake; and are not used in Medicine.

The ninth and tenth Sorts grow on dry Banks, and under Hedges, in several Parts of England; but are rarely cultivated in Gardens. The ninth Sort has been by some Writers greatly esteemed for discussing hard Swellings of the Face; which by some Country-people are called Hones; wherefore the Name of Honewort was given to this Plant, on account of that Quality. The Seeds of the tenth Sort are used in Medicine, as one of the lesser warm Seeds. This is called *Anomum* by the Germans, tho' it is not what the Antients meant by that Name.

All these Sorts may be cultivated by Seeds, which should be sown in Autumn soon after they are ripe: those Sorts which grow in standing Waters, must be scattered into such Places; but the other Sorts may be sown on a shady Border, where the Plants will come up in the Spring, and require no farther Care, but to keep them clear from Weeds; and where they grow too close together, to thin them, so as to allow them room to grow. The second Year these Plants will produce Flowers and Seeds; soon after which the Roots will perish.

SMALLAGE. Vide Apium.

SMILAX, Rough Bindweed.

The Characters are;

The Flower consists of several Leaves, which are placed circularly,

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and expand in form of a Rose, whose Pointal afterward becomes a Fruit, or soft roundish Berry, containing oval-shaped Seeds.

The Species are ;

1. *SMILAX aspera, fructu rubente.* C. B. P. Rough Bindweed, with a red Fruit.
2. *SMILAX viticulis asperis, foliis longis angustis mucronatis lævibus, auriculis ad basim rotundioribus.* Pluk. Phyt. Rough Bindweed, with long narrow-pointed smooth Leaves, having round Ears at the Base.
3. *SMILAX viticulis asperis, Virginiana, folio hederaceo lævi, Zarza nobilissima nobis.* Pluk. Phyt. Rough Virginian Bindweed, with a smooth Ivy-leaf, commonly called Zarzaparilla.
4. *SMILAX Orientalis, sarmentis aculeatis, altissimas arbores scandentibus, foliis non spinosis.* Tourn. Cor. Eastern rough Bindweed, with prickly Shoots, and smooth Leaves.
5. *SMILAX lævis, lauri folio, baccis nigris.* Catesb. Hist. Nat. Carol. Smooth Bindweed, with a Bay-leaf, and black Berries.
6. *SMILAX non spinosa humilis, foliis aristolochiæ, baccis rubris.* Catesb. Hist. Nat. Car. Dwarf smooth Bindweed, with a Birthwort-leaf, and red Berries.
7. *SMILAX bryoniæ nigræ foliis, caule spinoso, baccis nigris.* Catesb. Hist. Nat. Carol. Bindweed with black Bryony-leaves, a prickly Stalk, and black Berries.
8. *SMILAX Caroliniana, stipite quadrato leni, foliis angustis asperis, auriculis ad basim angulosis.* Pluk. Phyt. Carolina Bindweed, with square smooth Shoots, and rough narrow Leaves, which have cornered Ears at their Base.
9. *SMILAX foliis latis, in margine spinosis, Caroliniana, stipite leni quadrato.* Pluk. Phyt. Carolina Bind-

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weed, with broad Leaves, having Spines on their Edges, and a smooth square Shoot.

10. *SMILAX aspera Bermudensis, grandioribus foliis cordiformibus, radice furculosa.* Pluk. Phyt. Rough Bindweed of Bermudas, with larger heart-shaped Leaves, and a Root full of Shoots.

11. *SMILAX claviculata, hederæ folio, tota lævis, e Terra Mariana.* Pluk. Phyt. Smooth Bindweed, with Tendrils, and an Ivy-leaf, from Maryland.

12. *SMILAX viticulis asperis, Virginiana, foliis angustis lævibus, nullis auriculis prædita.* Pluk. Phyt. Virginian Bindweed, with rough Shoots, and smooth narrow Leaves, having no Ears.

13. *SMILAX Virginiana, spinis innocuis armata, latis canellæ foliis, radice arundinacea crassa & carnosa.* Pluk. Phyt. Virginian Bindweed, armed with innocent Spines, broad Cinnamon-leaves, and a thick fleshy Root, call'd bastard China.

14. *SMILAX Americana lævis, canellæ foliis, baccis rubris.* Smooth American Bindweed, with Cinnamon-leaves, and red Berries.

15. *SMILAX aspera Americana, aristolochiæ foliis longioribus, ad basim auriculatis.* Rough American Bindweed, with longer Birthwort-leaves, with Ears at their Base, whose Root is the Zarzaparilla of the Shops.

16. *SMILAX Americana lævis, tamni folio, claviculis longioribus donato.* Smooth American Bindweed, with a black Bryony-leaf, sending forth long Tendrils.

17. *SMILAX Americana lævis, latissimo folio, auriculis ad basim rotundioribus.* Smooth American Bindweed, with a very broad Leaf, having round Ears at the Base.

18. *SMILAX unifolia humillima.* L.f.

Inf. R. H. The lowest Bindweed or One-blade.

These Plants are preserved in the Gardens of such as are curious in Botany, for their Variety ; but there is no great Beauty or Use in them ; so that they are not very commonly cultivated in other Gardens.

The fourth Sort here mentioned was discovered by Dr. *Tournefort* in the *Levant*. This is a very rambling Plant, which climbs up Trees, and rises to a great Height in the Places of its natural Growth ; but is an humbler Plant in this Country. This may be propagated by Seeds, or from Off-sets taken from the old Roots ; and is hardy enough to live in the open Air in this Country, provided it is planted under Trees, where it may be a little protected in Winter.

The first, second, third, fifth, sixth, seventh, eighth, ninth, eleventh, twelfth, and thirteenth Sorts are Natives of *Carolina*, *Virginia*, and the other Northern Parts of *America*, where they grow in the Woods in the greatest Shade. These may also be propagated by Seeds, or Off-sets from the old Roots, as the former. Most of these Plants are preserved in Pots in the Gardens of the Curious ; but they will endure the Cold of our Winters in the open Air very well, and may be rendered ornamental by planting them under Trees in Wilderness-quarters, where they will fill up and cover the Ground ; and may be disposed so as to make an agreeable Variety. These Plants require a Soil rather moist than dry ; and if it be tolerably light, they will thrive much better than in a very strong one.

The tenth, fourteenth, fifteenth, sixteenth, and seventeenth Sorts are Natives of the warmer Parts of *America* ; so are more tender than either

of the former. These Sorts were discovered at *Campechy* by Mr. *Robert Millar*, Surgeon, who sent Samples of them to *England* ; the Root of the fifteenth Sort is the *Zarzaparilla*, which is directed by the College of Physicians to be used in Medicine.

These Sorts are propagated by Seeds or Off-sets, in the same manner as those before-mentioned ; but these must be preserved in Pots, and sheltered in Winter, otherwise they will not live in this Country. As these Plants rarely produce Seeds in *England*, they are commonly increased by parting their Roots ; the best time for doing of this is in *March*, just before they send forth new Shoots from their Roots ; for although the old Shoots abide, and retain their Leaves throughout the Year, yet there are every Spring new Shoots sent forth from their Roots, which come up like the small Shoots of *Asparagus*, with a naked Stem ; but afterward they send forth Side-branches, which are beset with Leaves. Some of these Sorts greatly multiply by their creeping Roots, which will extend to a great Distance, provided they are not confin'd ; but when they extend their Roots very far, they seldom produce very strong Shoots ; nor do they make so good an Appearance as when they grow close and thick.

When the Seeds of these Plants are obtained from abroad, they should be sown in Pots filled with fresh light Earth, and plunged into a moderate Hot-bed, observing to water the Earth frequently to keep it moist ; because the Seeds, being hard, will not vegetate without a considerable Share of Moisture ; and many times remain in the Ground a whole Year, before they grow ; so that if the Plants do not come up the first Season, the Pots should be kept clean

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from Weeds all the Summer ; and in Winter they should be sheltered from Frost under a common Frame ; the following Spring they must be again plunged into the Hot-bed, which will bring the Plants up very soon. When the Plants are come up, they must be constantly kept clear from Weeds, and frequently watered in warm Weather ; and toward the End of May they should be enured to the open Air by degrees ; and in June they may be removed out of the Bed, and placed abroad in a sheltered Situation, where they should remain till the Frost comes on in Autumn ; when they must be removed into Shelter. These Plants should remain untransplanted in the Seed-pots, till the following Spring, when they should be turned out of the Pots, and carefully separated : the tender Sorts should be planted in Pots fill'd with fresh Earth ; and if they are plunged into a very temperate Hot-bed, it will cause them to take new Root very soon, and greatly strengthen the Plants. But the hardy Kinds may be planted abroad under Trees, where (if they are kept clear from Weeds, until they have obtained sufficient Strength to overbear the Weeds) they will make an agreeable Variety, amongst other hardy Wood-plants.

The eighteenth Sort dies to the Root every Year, and rises in the Spring : it is a very humble Plant, seldom rising above four Inches high : this increases by its creeping Root ; for it rarely produces Seeds in this Country. It is a very hardy Plant, and grows in Woods ; but it is not a Native of England. I observed it growing plentifully in a Wood near the Hague, in a moist light sandy Soil ; so that whoever would cultivate this Plant, should plant it in such Situations. The best time to

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transplant this Plant is in the Autumn, when the Leaves are decay'd.

SMYRNIUM, Alexanders.

The Characters are ;

The Flowers are produced in Umbels, consisting of several Leaves, which are placed orbicularly, and expand in form of a Rose : these rest upon the Empalement, which afterward becomes an almost globular Fruit, composed of two pretty thick Seeds, sometimes shaped like a Crescent, gibbous, and streak'd on one Side, and plain on the other.

The Species are ;

1. SMYRNIUM. Matth. Common Alexanders.

2. SMYRNIUM *peregrinum*, *rotundo folio*. C. B. P. Foreign Alexanders, with a round Leaf.

3. SMYRNIUM *peregrinum*, *folio oblongo*. C. B. P. Foreign Alexanders, with an oblong Leaf.

4. SMYRNIUM *Creticum*, *paludapii foliis*. T. Cor. Candy Alexanders, with a Smallage-leaf.

The first of these Sorts (which is that order'd by the College for medicinal Use) grows wild in divers Parts of England, and at present is seldom cultivated in Gardens ; tho' formerly it was greatly used in the Kitchen, before Celery was so much cultivated, which hath taken place of Alexanders, in most Peoples Opinion. The other Sorts are preserved in Botanic Gardens for Variety ; but may either of them be cultivated for the Use of the Kitchen. The second Sort is much preferable to the first for blanching, as I have tried ; and will be tenderer, and not quite so strong.

All these Plants may be propagated by sowing their Seeds upon an open Spot of Ground in August, as soon as they are ripe ; for if they are preserved till Spring, they often miscarry, or at least do not come up un-

til the second Year; whereas those sown in Autumn rarely fail of coming up soon after *Christmas*, and will make much stronger Plants than the other.

In the Spring these Plants should be hoed out, so as to leave them ten Inches or a Foot apart each Way; and, during the following Summer, they must be constantly clear'd from Weeds, which, if permitted to grow amongst them, will draw them up slender, and render them good for little. In *February* following the Plants will shoot up again vigorously; at which time the Earth must be drawn up to each Plant, to blanch them; and in three Weeks after, they will be fit for Use; when they may be dug up, and the white Part preserved, which may be stew'd, and eaten as Celery.

SNAP-DRAGON. *Vide* Antirrhinum.

SNEEZEWORT. *Vide* Ptar-mica.

SNOWDROP. *Vide* Galanthus.

SOLANOIDES, Bastard Nightshade.

The Characters are;

It hath a rose-shaped Flower, consisting of five Leaves, whose Pointal after-ward becomes a roundish Fruit, having one hard Seed, which is cover'd with a thin Pulp, so as to have the Appearance of a Berry.

The Species are;

1. SOLANOIDES *Americana*, *circeæ foliis canescentibus*. Tourn. *American Solanoides*, with hoary Inchanters-nightshade-leaves.

2. SOLANOIDES *Americana*, *circeæ foliis glabris*. Tourn. *American Solanoides* with smooth Inchanters-nightshade-leaves.

This Genus of Plants was established by Dr. *Tournefort*; the Characters of which are publish'd in the *Memoirs of the Academy of Sciences at Paris*; but Dr. *Linnaeus* has suppo-

fed this to be the same with Father *Plumier's* Genus of *Rivina*; so he has applied *Plumier's* Title to these Plants; and accuses *Plumier* of making a Blunder in his Figure, in putting eight *Stamina* to each Flower; whereas these Plants have but four: but the Mistake is *Linnaeus's*; for the Flowers of *Plumier's Rivina* have eight *Stamina*; but those Plants are very different from these of the *Solanoides*.

These Plants are Natives of the warmer Parts of *America*, from whence their Seeds have been brought into *Europe*; and the Plants are now become pretty common in the Gardens of the Curious. They are propagated by Seeds, which should be sown on an Hot-bed early in the Spring; and when the Plants are come up, they should be transplanted each into a separate small Pot fill'd with fresh light Earth, and plunged into a moderate Hot-bed of Tanners Bark, observing to shade them from the Sun, until they have taken new Root; after which time they must have a large Share of Air admitted to them in warm Weather, and they must be constantly watered: when the Plants have obtained Strength, they should be enured to bear the open Air by degrees; and in *June* they should be shifted into larger Pots, and removed either into the Stove, or an airy Glass-case, where they may have a large Share of Air in warm Weather; and if they are duly watered, they will thrive, and produce Flowers in *July*, and their Fruit will ripen in *September*; but there will be a Succession of Flowers and Fruit all the Winter, provided the Plants are preserved in a moderate Temperature of Heat; so that the Fruit of these Plants afford an agreeable Variety in the Stove in Winter; for being of a bright

bright red Colour, and growing in long Bunches, they make a fine Appearance. These Plants will abide several Years, and produce plenty of Flowers and Fruit : but they should constantly remain in Shelter ; for if they are exposed in Summer, they will lose their large Leaves, and appear stunted ; nor will the Fruit continue on the Plants ; so that the best way is, to let them remain always in the Stove, giving them a large Share of Air in Summer, which will keep them in Vigour, and render them beautiful.

The Fruit of these Plants afford a fine red Colour, when bruised ; but it soon fades on Paper ; which renders it worth little. If a Quantity of these Fruit is squeez'd into a Glass of fair Water, so as to colour the Water of a deep-red, and a Stem of Flowers of the Tuberose put into the Glass, it will in one Night imbibe so much of the Liquor, as to variegate the Flowers with a Rose-colour.

SOLANUM, Nightshade.

The Characters are ;

The Flower consists of one Leaf, which is divided into five Parts, and expands in form of a Star : from the Flower-cup rises the Pointal, which afterward becomes a round or oval soft succulent Fruit, containing many flat Seeds in each.

The Species are ;

1. SOLANUM officinarum, acinis nigricantibus. C. B. P. Common Nightshade of the Shops, with black Fruit.

2. SOLANUM officinarum, acinis puniceis. C. B. P. Nightshade with red Fruit.

3. SOLANUM officinarum, acinis luteis. C. B. P. Nightshade with yellow Fruit.

4. SOLANUM scandens, seu dulca-

mara. C. B. P. Perennial climbing Nightshade, commonly called Bitter-sweet.

5. SOLANUM scandens, seu dulcamara, flore albo. C. B. P. Perennial climbing Nightshade, with a white Flower.

6. SOLANUM scandens, foliis variegatis. H. R. Par. Perennial climbing Nightshade, with variegated Leaves.

7. SOLANUM fruticosum bacciferum. C. B. P. Shrubby berry-bearing Nightshade, commonly called Amomum Plinii.

8. SOLANUM Guineense, fructu magno instar cerasi nigerrimo umbellato. Boerb. Ind. Nightshade from Guiney, with large Fruit, resembling black Cherries, which grow in an Umbel.

9. SOLANUM spiniferum frutescens, spinis igneis, Americanum. Pluk. Phyt. Shrubby and thorny American Nightshade, with fire-colour'd Thorns.

10. SOLANUM spinosum, maxime tomentosum. Bocc. Rar. Plant. Thorny Nightshade, very much cover'd with a Wool or Down.

11. SOLANUM Americanum spinosum, foliis melongenæ, fructu mammoso. D. Lig. Tourn. Thorny American Nightshade, with Leaves like those of Mad-apple, and a Fruit shaped like an inverted Pear, commonly called in Barbados Bachelors-pear.

12. SOLANUM pomiferum frutescens Africanum spinosum nigricans, flore boraginis, foliis profunde laciniatis. H. L. Shrubby African apple-bearing Nightshade, with black Thorns, a Flower like Borage, and deeply jagged Leaves ; commonly called Pomum Amoris.

13. SOLANUM Americanum spinosum herbaceum, acanthi folio, flore amplo caruleo. Houst. Prickly herbaceous

baceous *American* Nightshade, with a Bears-breech-leaf, and a large blue Flower.

14. *SOLANUM Americanum spinosissimum herbaceum, anguriæ folio, flore luteo. Houst.* The most prickly *American* Nightshade, with a Watermelon-leaf, and a yellow Flower.

15. *SOLANUM Americanum, frutescens & spinosum, quercus folio, bacis rubris. Houst.* Shrubby and prickly *American* Nightshade, with an Oak-leaf, and red Berries.

16. *SOLANUM Americanum bacciferum, caule & foliis tomento incanis spinosis, flore luteo, fructu croceo. Sloan. Cat.* Berry-bearing *American* Nightshade, with hoary Stalks and Leaves, a yellow Flower, and saffron-colour'd Fruit.

17. *SOLANUM Americanum fruticosum bacciferum spinosum, flore cæruleo. Sloan.* Shrubby berry-bearing *American* Nightshade, with a blue Flower.

18. *SOLANUM Americanum, frutescens & spinosum, flore magno albo. Houst.* Prickly and shrubby *American* Nightshade, with a large white Flower.

19. *SOLANUM Americanum, scandens & frutescens, flore magno cæruleo, fructu rubro. Houst.* Shrubby climbing *American* Nightshade, with a large blue Flower, and a red Fruit.

20. *SOLANUM Americanum frutescens, non spinosum, lauri folio, flore racemoso cæruleo. Houst.* Smooth shrubby *American* Nightshade, with a Bay-leaf, and blue Flowers growing in Clusters.

21. *SOLANUM Americanum, frutescens & spinosum, foliis infra tomentosis, flore magno cæruleo. Houst.* Shrubby and prickly *American* Nightshade, with Leaves which are hoary

underneath, and a large blue Flower.

22. *SOLANUM Americanum arborescens, verbasci folio, fructu flavescente majori. Plum.* Tree-like *American* Nightshade, with a Mullein-leaf, and a larger yellow Fruit.

23. *SOLANUM Bonariense arborescens, papas floribus. Hort. Elth.* Tree-like Nightshade of *Buenos Ayres*, with Flowers like the Potato.

24. *SOLANUM Bahamense arborescens, folio sinuato. Hort. Elth.* Tree-like Nightshade from the *Bahama* Islands, with a sinuated Leaf.

25. *SOLANUM lignosum Africanum sempervirens, laurinis foliis. H. Amst.* Woody ever-green *African* Nightshade, with Bay-leaves.

26. *SOLANUM Americanum scandens, foliis tomentosis. Plum.* Climbing *American* Nightshade, with woolly Leaves.

27. *SOLANUM Americanum scandens, aculeatum, hyoscyami folio, flore intus albo, extus purpureo. Plum.* Climbing prickly *American* Nightshade, with an Henbane-leaf, and a Flower white within, and purple on the Outside.

28. *SOLANUM Americanum fruticosum, persicæ foliis, aculeatum. Plum.* Shrubby and prickly *American* Nightshade, with Peach-leaves.

29. *SOLANUM dulcamarum Africanum, foliis crassis hirsutis. Hort. Elth.* Climbing *African* Nightshade, with hairy thick Leaves.

30. *SOLANUM Americanum arborescens, non spinosum, flore parvo rubente, fructu aureo. Houst.* Smooth *American* tree-like Nightshade, with a small redish Flower, and a gold-colour'd Fruit.

31. *SOLANUM Americanum arborescens, non spinosum, lauri folio aspero, floribus umbellatis albis. Houst.* Smooth

Smooth tree-like *American* Nightshade, with a rough Bay-leaf, and white Flowers growing in Umbels.

The first Sort is now very common upon Dunghils, and on rich cultivated Soils, in many Parts of *England*; where it often becomes a troublesome Weed. This is the Sort which the College of Physicians have directed to be us'd in Medicine, under the Title of *Solanum hortense*: and although it is now become a very troublesome Weed in many Gardens near *London*, yet it is not a Native of this Country, but is suppos'd to have been brought originally from *America*; from whence the greater Part of the Species of this Genus have been introduc'd into *Europe*. The second and third Sorts are very near to the first, differing from it in the Colour of their Fruits, and the Plants being woolly. The third Sort I have received from the Island of *Barbados* two or three different times; so I suppose it to be a Weed of that Country. The eighth Sort produces much larger Fruit than either of the former, and the Plants will grow proportionably larger.

The fourth Sort is a climbing woody Plant, which grows in the Hedges in divers Parts of *England*; and is by some planted in Gardens, to cover Arbours, or shady Walks, in *London*, and other close Places, where few other Plants will thrive. This Plant is also used in Medicine, for some particular Preparations; but the Herb-folks in the Markets often sell this instead of the Garden Nightshade, which is a cooling Plant, and this an hot acrid one; which renders it contrary to the Intention of the Ointment, wherein Nightshade is one of the Ingredients.

The Sort with white Flowers is a Variety of the former, as also that with variegated Leaves; both which are preserv'd by those who are very

curious in collecting the various Kinds of Plants.

These may be easily propagated by laying down their Branches, or by planting their Cuttings in the Spring upon a moist Soil; where they will soon take Root, and may afterward be transplanted where they are to remain.

The *Amomum Plinii* is propagated in great Plenty, for the Beauty of its large red Fruit, which is always ripe in Winter; so that when the Trees have plenty of Fruit, they make a very handsome Appearance in a Green-house, when intermix'd with Orange, Myrtle, and other Exotics.

This Plant may be propagated by sowing its Seeds in a Pot of rich Earth in the Spring, placing it upon a moderate Hot-bed, which will greatly facilitate the Growth of the Seeds: the Earth in the Pot should be frequently water'd; for if it is kept too dry, the Seeds will not grow. When the Plants are come up, you should make a gentle Hot-bed, which must be cover'd with rich Earth about six Inches thick; in this they should be planted about six Inches Distance each Way, and the Bed arch'd over with Hoops, &c. and cover'd with Mats, to shade them from the Sun and Cold; observing frequently to water them.

When the Plants have acquir'd Strength, and the Season becomes favourable, you must enure them to bear the open Air by degrees, to which they should be fully exposed in *June*; when also they should be taken up, with a Ball of Earth to the Root of each Plant, and plac'd separately in Pots fill'd with rich Earth; which must be set in a shady Situation, and frequently water'd until they have taken Root; after which they may be remov'd into a more open Exposure, and

and plac'd among other Exotic Plants; but they require a great Plenty of Water in dry Weather; without which they seldom produce much Fruit.

In Winter they must be remov'd into the Green-house, and placed in the coldest Part of the House, where they may have as much free Air as possible in mild Weather; being so hardy, as many times to endure the Cold of our ordinary Winters abroad, when planted in a warm Situation; so that they only require to be shelter'd from severe Frost.

These Plants should be annually shifted about the Latter-end of *April*, when their Roots should be pared round, cutting off all the mouldy Fibres which were next the Pot, and the Pots fill'd up with fresh rich Earth; which will strengthen their Flowers, and cause them to produce plenty of Fruit; which (as I said before) ripens in Winter, and being of the Shape and Size of Cherries, are commonly call'd Winter Cherries by the Gardeners.

The ninth and eleventh Sorts are much tenderer than the former, being brought from the warm Parts of *America*. These are also propagated by sowing their Seeds in the Spring upon a good Hot-bed; and when the Plants are come up, they should be each transplanted into a separate small Pot fill'd with rich Earth, and plung'd into a fresh Hot-bed, observing to water and shade them until they have taken Root; after which they should have Air and Water in proportion to the Heat of the Season, and the Bed in which they are placed; and when their Roots have fill'd the Pots in which they were planted (which they will do in a Month's time, if they thrive), they must be shaken out; and after having gently pared off the Fibres which grew

next the Pot, they should be placed in Pots a Size larger, which must be fill'd with fresh rich Earth, and plung'd into a fresh Hot-bed, to bring the Plants forward, observing to water them frequently; for they will not thrive without plenty of Moisture in warm Weather.

In *July* these Plants may be enured to bear the open Air by degrees, into which they may be remov'd, if the Season be warm; but otherwise they must always be preserv'd either under Glasses, or in the Stove; and if they are placed in the open Air, they should not remain there longer than the End of *September* lest the Nights, growing cold, should hurt them. During the Winter-season they must be preserv'd in the Stove, observing to water them frequently; and the second Year they will produce Flowers and Fruit.

The tenth and twelfth Sorts are not so tender as the last; but require an open airy Glass-case, or a warm Green-house in Winter; but in Summer may be expos'd in the open Air with other Exotic Plants. These may be propagated by sowing their Seeds on an Hot-bed, as the former; and should be manag'd as hath been directed for them, with this Difference, that they may be much sooner expos'd to the open Air, and should not be bred so tenderly. These are preserv'd for their odd Appearance, by such as are curious in cultivating Exotic Plants: their Fruits, being ripe in Winter, afford a Variety in the Green-house; and their Leaves and Flowers, being very remarkable in their Colour, Shape, &c. render them worthy of a Place in every good Collection of Plants.

There is also another Variety, which differs very much from the tenth Sort, though call'd by that Name

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Name in most of the *English* Gardens where it is preserv'd; which I believe came from *Virginia*, and being somewhat like the Figure given by *Pere Boccone* of the tenth Sort, I suppose was taken for the same Plant; but they are very different from each other, as appear'd by some Plants which I rais'd from Seeds sent me by Signior *Tilli*, Professor of Botany at *Pisa*, of *Boccone's* Plant, and others rais'd from the old Sort, which came from *Virginia*; both which, being cultivated together, retain'd a specific Difference.

The thirteenth, fourteenth, fifteenth, eighteenth, nineteenth, twentieth, thirtieth, and thirty-first Sorts were discover'd by the late Dr. *Houftoun*, near *La Vera Cruz* in *America*, from whence he sent their Seeds to *England*; many of which have succeeded in several curious Gardens, where the Plants are now growing.

The thirteenth, fourteenth, and sixteenth Sorts, being annual Plants, rarely produce ripe Seeds in *England*; but the others are abiding Plants, which flower every Year, and sometimes perfect their Fruit in this Country.

These, being Natives of a warm Country, must be rais'd on an Hot-bed early in the Spring; and when the Plants are fit to remove, they must be each planted in a separate small Pot fill'd with fresh rich Earth, and plunged into a moderate Hot-bed of Tanners Bark, observing to shade them from the Sun until they have taken new Root; after which time, they should have a large Share of fresh Air admitted to them in warm Weather, and may be plentifully water'd. Toward the Latter-end of *June* it will be proper to harden the Plants to endure the open Air; and soon after they should be

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remov'd into the Stove, where they must have as much free Air as possible in warm Weather; but as the Cold approaches in Autumn, they must be carefully protected therefrom; and in Winter they should be kept in a moderate Temperature of Warmth, otherwise they will not live in this Country.

Some of these Sorts will bear to be expos'd in the open Air, in the Heat of Summer, provided they are plac'd in a warm Situation; but if the Season should prove cold, they will not thrive abroad; wherefore it will be better to let them remain in the Stove, and open the Glasses in Front, and at the Top of the Stove, every Day, to admit as much Air as possible in hot Weather; with which Management they will thrive much better than in the open Air.

The sixteenth and seventeenth Sorts were discover'd by Sir *Hans Sloane* in *Jamaica*, where they grow in plenty. The Seeds of these were also sent to *England* by the late Dr. *William Houftoun*.

The twentieth Sort was discovered by the late Dr. *William Houftoun*, at *Campechy*, where it hath been found in great Plenty by Mr. *Robert Millar*, a Surgeon, who sent the Seeds to *England*.

The twenty-second, twenty-seventh, and twenty-eighth Sorts were discover'd by Father *Plumier* in some of the *French* Settlements in the *West-Indies*; and have since been found by Mr. *Robert Millar*, near *Carthagera* in *America*, from whence he sent their Seeds.

The twenty-third Sort was sent from *Buenos Ayres*; and the twelfth Sort is a Native of the *Bahama Islands*.

All these, being Natives of warm Countries, must be treated in the same

same manner as hath been directed for the former Sorts; otherwise they will not thrive in *England*.

The twenty-fifth and twenty-sixth Sorts, being Natives of the *Cape of Good Hope*, are less tender than any of the other Kinds. These must be preserv'd in Pots, and plac'd in a good Green-house in Winter, where they should have a large Share of free Air in mild Weather; but must be secur'd against Frost, during the Winter-season. They will require to be frequently refresh'd with Water; but in cold Weather it must be given to them in moderate Quantities; and in Summer the Plants should be plac'd in the open Air, in a warm-shelter'd Situation, during which Season they will require a more plentiful Supply of Water in dry Weather; for they are thirsty Plants, as are all of the Tribe.

The climbing Sorts of Nightshade may be propagated by Cuttings, which should be taken off in *May*; and those of the tender Kinds should be planted in Pots filled with fresh Earth, and plunged into an Hot-bed of Tanners Bark, where they should be carefully screen'd from the Heat of the Sun every Day, until they have taken Root; after which they may be treated in the same manner as those Plants which come from Seeds. But the twenty-ninth Sort, which is more hardy, will not require so much Care; for if the Cuttings of this Kind are planted in a shady Border, they will take Root, and may be afterward taken up, and potted, and placed in a warm Situation in the open Air till *October*, when they must be remov'd into the Green-house for the Winter-season.

These Plants, when they thrive well, and produce plenty of Fruit, make an agreeable Variety amongst other Exotic Plants in the Stove and

Green-house, especially in the Winter-season; at which time they commonly have plenty of Fruit, which make a pretty Appearance, when there are not many other Plants in Beauty. And some of these Sorts, whose Flowers are large, and of beautiful Colours, make a fine Appearance, and are worthy of a Place in the Stove, tho' they do not constantly produce Fruit in this Climate; especially the thirteenth Sort, whose Flowers are very large, and of a fine blue Colour; and the twentieth Sort, whose Flowers, though small, yet being produc'd in long Clusters, and being of a fine blue Colour, make a beautiful Appearance; and these frequently flower in the Winter-season.

The thirteenth, fourteenth, and sixteenth, being annual Plants, the Seeds should be sown early in the Spring; and the Plants must be brought forward in Hot-beds, otherwise they will not produce ripe Fruit in this Country; for they seldom flower until the Middle of *July*, and the Plants perish on the first Approach of Cold in the Autumn.

SOLDANELLA, Soldanel.

The Characters are;

It hath a bell-shaped Flower, consisting of one Leaf, which is, for the most part, fringed: the Pointal, which arises from the lower Part of the Empalement, afterward becomes a Fruit of a cylindrical Figure, opening at the Top, and full of Seeds, which adhere to a Placenta.

The Species are;

1. **SOLDANELLA** *Alpina rotundifolia*. C. B. P. Round-leav'd Soldanel of the Alps.
2. **SOLDANELLA** *Alpina rotundifolia*, *flore niveo*. C. B. P. Round-leav'd Soldanel of the Alps, with a snow-white Flower.
3. **SOLDANELLA** *Alpina*, *folio mi-*

pus rotundo. C. B. P. Soldanel of the Alps, with a Leaf less round.

These Plants grow on the Alps, and several other mountainous Places of Italy, Germany, and Hungary; from whence the Plants have been obtain'd by some curious Persons, who preserve them in their Gardens for the sake of Variety. They are Plants of humble Growth, seldom rising above three or four Inches high. Their round Leaves grow close to the Ground, from between which the Flower-stems arise; each of which have four or five Flowers, which in the first Sort are of a fine blue Colour; but the second of a Snow-white, which hang down, and are shap'd like Bells. They flower the Latter-end of April, or the Beginning of May, and their Seeds are ripe in July.

The best Method to propagate these Plants is, by parting of their Roots; because their Seeds do not succeed, unless they are perfectly ripe, and well nourish'd; and this rarely happens in England. Nor do the Seeds which are brought from abroad, succeed; for they seldom grow, unless they are sown soon after they are ripe.

The Season for transplanting and parting these Roots is in September, that they may have time to make good Roots before Winter; for if they are remov'd in the Spring, they never flower very strong; and if the Season should prove dry, the Plants will decay, unless they are constantly supply'd with Water.

The Soil in which these Plants thrive best, is a strong cool Loam, and they must have a shady Situation; for if they are expos'd to the Sun, they will not live; nor will thrive in a warm light Soil. In dry Weather these Plants should be frequently water'd; which will cause

them to flower strongly, and make a good Increase.

If the Seeds ripen in England, and any Person is desirous to propagate the Plants that way, they should be sown in Boxes or Pots fill'd with fresh loamy Earth, soon after they are ripe; and the Boxes must be plac'd in a shady Situation, and frequently water'd in dry Weather. The Plants will sometimes appear the same Autumn the Seeds are sown; but more frequently they do not come up till the following Spring; so that the Earth must not be disturb'd, nor Weeds permitted to grow in the Boxes. When the Plants come up, they must be duly water'd in dry Weather, and constantly plac'd in a shady Situation. The following Autumn the Plants should be taken out of the Boxes, and planted in a shady Border, about six or eight Inches asunder, where they may remain to flower; or they may be intermix'd with other low Alpine Plants in North Borders, where they will make an agreeable Variety.

SOLIDAGO, Woundwort.

The Characters are;

It hath compound radiated Flowers, which are some Female, and others Hermaphrodite: the Female Flowers compose the Rays, being situated round the Border, and each having a Segment stretched out like a Tongue, which is trifid: the Hermaphrodite Flowers are tubulous, and divided into five Parts at their Brim; these occupy the Disk in the Middle: they are many of them included in a common cylindrical scaly Empalement: these Florets are each succeeded by a single compress'd Seed, which is crown'd with a downy Substance.

The Species are;

1. SOLIDAGO *Saracenica. Dod. Pempt.* Saracens Woundwort.

2. SOLIDAGO *altissima, foliis oblongis*

longis serratis, radice repente. Tallest Woundwort, with oblong sawed Leaves, and a creeping Root.

3. *SOLIDAGO altissima, foliis oblongis glabris, marginibus dentatis.* Tallest Eastern Woundwort, with oblong smooth Leaves, indented on the Edges.

4. *SOLIDAGO foliis ovato-lanceolatis, inferioribus petiolatis, superioribus amplexicaulibus.* Low Woundwort, with oval spear-shap'd Leaves; the lower having long Pedicles, but the upper closely embracing the Stalk.

5. *SOLIDAGO foliis cordatis petiolatis serratis.* Flor. Lugd. Alpine Woundwort, with heart-shap'd sawed Leaves, having Footstalks.

6. *SOLIDAGO foliis reniformibus suborbiculatis denticulatis, caule procumbente.* African Woundwort, with roundish Ground-ivy-leaves.

7. *SOLIDAGO foliis obverse ovatis carnosius crenatis, caule fruticoso, corymbo ramoso.* Lin. Hort. Cliff. African shrubby Woundwort, with oval fleshy Leaves, which are crenated, and branching Flower-heads.

8. *SOLIDAGO foliis sagittatis amplexicaulibus dentatis, caule fruticoso.* Lin. Hort. Cliff. Shrubby African Woundwort, with arrow-shap'd Leaves embracing the Stalks.

9. *SOLIDAGO foliis linearibus integerrimis, corymbis ramosis, florum radio brevissimo.* Lin. Hort. Cliff. African Woundwort, with narrow whole Leaves, and branching Flowers, with very short Rays, commonly call'd African Groundsel.

The first Sort grows wild about *Straßburgh*, as also in *Silesia*. This hath a perennial Root, and an annual Stalk, which grows five or six Feet high; and if it is planted in moist rich Ground, it will grow much taller. The Leaves of this Sort are a Foot in Length, smooth

on their Surface, and slightly sawed on their Edges. The Flowers grow in Bunches on the Top of the Stalks, which are yellow, and somewhat like those of Ragwort; but the Rays are not so long.

The second Sort has been found growing wild in some Places in *England*. This doth not grow above four or five Feet high; the Leaves are deeply sawed on their Edges, and the Root creeps in the Ground; so that it will spread over a large Tract in a short time, if the Roots are not confin'd.

The third Sort is a Native of the East, from whence Dr. *Tournefort* sent the Seeds to *Paris*. This is like the first Sort; but the Leaves are not so broad, and the Edges are very slightly indented: the Stalks grow taller, and the Bunches of Flowers are closer.

All these three are very hardy Plants, and delight in a moist rich Soil; for they naturally grow by the Sides of Rivers, or standing Waters. They are too large to be admitted into Gardens; so are rarely preserv'd but in Botanic Gardens, for the sake of Variety.

The fourth Sort is a Native of *America*; it was first brought from *New-York*; but hath since been found in *Pensylvania*, and other Northern Parts of *America*. This Sort seldom grows three Feet high, nor do the Roots spread in the Ground like either of the former Sorts; so deserves a Place in all large Gardens, where there is room to admit Plants of the same Growth. The lower Leaves of this Plant are pretty thick and succulent; these have long Footstalks; but those which come out toward the upper Part of the Stalks are much shorter, and have no Footstalk, but closely embrace the Stalks. The Flowers are produced in large

Bunches on the Top of the Stalks, and are somewhat like those of the Golden-rod, but larger. These are produced toward the End of *August*, and continue in Beauty all *September*; which renders this Sort more valuable. This is as hardy as the other Sorts, and is propagated by parting of the Roots: the best time for this is in *October*, soon after the Flowers are past, that the Plants may have good Root in the Ground before the dry Weather of the Spring; otherwise they will not flower so well. It delights in a rich moist Soil.

The fifth Sort is somewhat like the second; but the Leaves are much shorter, and shap'd somewhat like an Heart. This is very hardy, and requires no other Treatment than the three first Species.

The sixth, seventh, eighth, and ninth Sorts are Natives of *Africa*, growing near the *Cape of Good Hope*; so these are too tender to live in the open Air in Winter, and are always preserv'd in the Green-house in *England*. The sixth Sort hath trailing Branches, which lie upon the Ground where they are not supported; nor do these Branches ever grow to be woody. The Flowers have no great Beauty, which makes this Plant of little Esteem; so it is seldom preserv'd, but in Botanic Gardens.

The seventh, eighth, and ninth Sorts are shrubby Plants, which grow about four or five Feet high, and divide into many irregular Branches. The Flowers are generally produc'd at the Ends of the Branches, which are yellow, and in Shape like those of the Ragwort; to which Genus these Plants were usually plac'd by the Botanists.

The ninth Sort is not so shrubby as the other two, nor do the Plants

grow so tall: the Stalks are more herbaceous, and the Leaves are long, narrow, and hairy. These are produc'd very close on the Branches, without any Order, as are also the Branches. The Flowers grow in close Clusters at the End of the Shoots: these appear in *August* and *September*, and continue to the End of *October*, and sometimes till near *Christmas*.

These four Sorts are easily propagated by Seeds or Cuttings; but the latter Method is generally practis'd in *England*; for it is much the shorter way, as every Cutting will grow, if they are planted in a shady Border, either in *June*, *July*, or *August*; and when the Cuttings have made good Roots, they should then be taken up, and planted in Pots; for if they are permitted to remain long in the full Ground, their Roots will extend to a great Distance, and the Plants will shoot very vigorously; so that, if they are then remov'd, there will be great Danger of their succeeding; and if they should live, the Plants will not be so handsome as those which were early potted.

In the Winter-time these Plants must be housed; but they should have as much free Air as possible in mild Weather, and also plenty of Water; for they are very thirsty Plants; nor do they require any other Care in Winter, but to preserve them from Frost. In Summer they must be often shifted into other Pots; for their Roots will strike thro' the Holes of the Pots (if they stand long unremov'd) into the Ground; and then the Plants will grow luxuriantly, and, upon being remov'd, will often die. As these Plants do not continue long, Cuttings should be annually planted to secure the Species.

SONCHUS, Sowthistle.

These

These are most of them Weeds in England, and are not planted in Gardens; for if their Seeds are once permitted to scatter upon the Ground, they will soon stock it with Plants; for which Reason, they should always be extirpated; not only those in the Garden, but also those in the Parts near it; because their Seeds, being furnish'd with Down, are wafted in the Air to a considerable Distance, where falling on the Ground, they soon come up, and prove troublesome.

SORBUS, The Service-tree.

The Characters are;

The Flower consists of several Leaves, which are placed orbicularly, and expand in form of a Rose; whose Flower-cup afterward becomes a Fruit shaped like a Pear or Medlar: to which must be added, Pennated Leaves, like those of the Ash.

The Species are;

1. *SORBUS sativa*. C. B. P. The manured Service-tree.

2. *SORBUS sativa*, *fructu pyramiformi, medio rubente*. H. Cath. The manured Service, with pear-shap'd Fruit, red in the Middle.

3. *SORBUS sativa*, *fructu serotino minori turbinato rubente*. Tourn. The lesser late-ripe Service, with a Medlar-shaped Fruit.

4. *SORBUS sativa*, *fructu ovato, medio rubente*. Hort. Cath. The manured Service, with an oval Fruit, which is red within.

5. *SORBUS sativa*, *magno fructu turbinato, pallide rubente*. Inst. R. H. The manured Service, with a large turbinated Fruit of a pale-red Colour.

6. *SORBUS sativa*, *magno fructu nonnihil turbinato, rubro*. Inst. R. H. The manured Service, with a large red Fruit not turbinated.

7. *SORBUS sativa*, *fructu turbinato, omnium minimo*. Inst. R. H.

The manured Service, with the least Fruit.

8. *SORBUS Orientalis, fraxini folio*. Tourn. Cor. Eastern Service, with an Ash-leaf.

9. *SORBUS Orientalis, fructu magno, compresso, & flavescente*. Tourn. Cor. Eastern Service, with a large, flat, yellowish Fruit.

10. *SORBUS aucuparia*. J. B. The wild Service, or Quick-beam, by some call'd The Quicken-tree.

11. *SORBUS sylvestris, foliis ex luteo variegatis*. The wild Service or Quick-beam, with striped Leaves.

The manured Service was formerly said to be growing wild in England; but this I believe was a Mistake; for several curious Persons have strictly search'd those Places where it was mention'd to grow, and could not find it; nor could they learn from the Inhabitants of those Countries, that any such Tree had grown there.

In Italy these Trees are very common, where they have a great Variety of Sorts, which were obtain'd from Seeds; but I have not observ'd in the English Gardens more than the three Sorts first mention'd, and those are yet very scarce; for I have not seen more than one large Tree of the true Service in England, which was lately growing in the Gardens formerly belonging to John Tradescant at South-Lambeth, near Vauxhall in Surry, who was a very curious Collector of rare Plants in King Charles the Second's time; which Tree was near forty Feet high, and did produce a great Quantity of Fruit annually. There are, indeed, some Trees of middling Growth in the Gardens of Henry Marsh, Esq; at Hamersmith, which produce Fruit (from whence several young Plants have been raised of late in the Nurseries near London); but these are small,

small, compar'd to that in *John Tradescant's* Garden.

There are great Numbers of large Trees of this Service growing wild about *Aubigny* in *France*; from whence his Grace the late Duke of *Richmond* brought a great Quantity of the Fruit, and from the Seeds raised a great Number of young Plants in his Gardens at *Goodwood* in *Suffex*.

These Fruits nearly resemble Medlars in their Nature, being of a very austere Taste, till they are rotten; when they have a more agreeable Flavour; but in *England* their Fruit does not ripen so well as in warmer Countries, and is therefore less esteem'd; however, the Trees are propagated by such Persons as are curious in collecting the various Kinds of hardy Trees and Shrubs, for the Oddness of their Leaves and Fruit.

They may be propagated by sowing their Seeds on a moderate Hot-bed in the Spring; and when the Plants are come up, they should be carefully kept clear from Weeds, and in dry Weather water'd; but they should be expos'd to the open Air; for the only Reason of making an Hot-bed is, to forward the Growth of the Seeds: but if, when the Plants are come up, the Bed is kept covered, it will draw the Plants, and spoil them. In this Bed the Plants should remain until the Middle of *October*, when there should be a warm light Spot of Ground prepar'd to receive them; into which they should be planted in Rows two Feet asunder, and a Foot distant in the Rows; observing to take them up carefully, and to plant them as soon as possible, that their Roots may not dry.

During the Summer, the Ground

should be kept constantly clear from Weeds; and in Winter there should be a little Mulch laid upon the Surface of the Ground about their Roots, to protect them from being injur'd by Frost; but in the Spring the Ground between them should be dug, burying the Mulch therein; in doing of which, you must be careful not to cut or injure the Roots of the Plants.

In this Nursery they may continue three or four Years, according to their Growth, when it will be proper to transplant them out where they are to remain; the best Season for which is in *October*, or in the Spring, just before they begin to shoot. The Soil should be warm in which they are planted, and the Situation defended from cold Winds; in which Place they will thrive, and produce Fruit in a few Years; but as the Fruit will vary from those from which the Seeds were taken (as is the Case of most Sorts of Fruit), the surest Method to have the particular Sorts which you intend to cultivate, is, to bud or graft them either upon their own, or the wild Service Stock; upon which they will take, and produce Fruit in a few Years.

The four Sorts next-mention'd are very common in the *Italian* Gardens; and of late Years they have been brought into *England* by the Persons who bring over Orange-trees, &c. so that in a few Years they may be common in *England*. But the great Difficulty is in keeping of the Sorts; because when these Trees are propagated by Seed, they vary as much in their Kinds as Apples and Pears: and it is very difficult to propagate them by grafting or budding; for they seldom succeed when grafted on Pears, Apples, or Medlars; and it is not easy to raise Stocks of their own Kind,

Kind, unless the Seeds be procur'd from abroad ; for the Fruit does not always ripen in this Country.

The fifth and sixth Sorts were discover'd by Dr. *Tournefort* in the *Levant* ; but at present they are not in the *English* Gardens. These Sorts may be all propagated by Seeds, after the manner directed for the former Sorts. The best way to procure good Seeds of these Plants is, to have the Fruit, when duly ripen'd abroad, put up in Boxes of Sand, and sent over, in which Method they may be brought over very well ; for if the Fruit should rot, the Seeds will remain good by being preserv'd in Sand.

The wild Service or Quick-beam grows wild in divers Parts of *England* ; but it is often cultivated in Gardens, for Variety. This produces large Bunches of Flowers at the Extremity of its Branches in *May*, which are succeeded by large roundish Fruit, which change to a beautiful scarlet Colour in Autumn, when they afford an agreeable Variety in Wilderness-quarters.

There are few of these Trees in any of the Counties near *London*, which are more than twenty Feet high ; but in the Northern Counties, as also in *Shropshire* and *Wales*, I have seen many of these Trees of a very large Size ; some of them near two Feet Diameter in their Stems, and upward of forty Feet high. It is called the Roane-tree in the North ; and in some Places the Wicken-tree ; which is probably a Corruption of Quick-beam.

The Wood of this Tree is much commended by the Wheelwright for being all Heart ; and it is of great Use for Husbandmens Tools, Goads, &c. The Flowers of this Tree smell very sweet, and the Fruit is extraordinary Food for Thrushes ; so that

where these Trees are planted, they will greatly frequent.

The Sort with variegated Leaves is preserv'd by such as are curious in collecting the several Sorts of striped Plants ; but there is no great Beauty in it. This may be propagated by Layers, or by being budded on the plain Sort ; but they become plain again, if planted on a very rich Soil.

These Trees should have a moist strong Soil ; but will grow in the most exposed Places, being extremely hardy ; which renders them worthy of Care, since they will thrive where few other Trees will succeed.

SORREL. *Vide* Acetosa.

SOUTHERNWOOD. *Vide* Abrotanum.

SOWBREAD. *Vide* Cyclamen.

SPARTIUM, The Broom-tree.

The Characters are ;

It hath a papilionaceous Flower, whose Pointal, which rises from the Flower-cup, afterward becomes a short, roundish, swelling Pod, containing, for the most part, one kidney-shap'd Seed in each.

The Species are ;

1. SPARTIUM *alterum monospermum, semine reni simile. C. B. P.* Another Spanish Broom, with Pods containing one kidney-shap'd Seed.

2. SPARTIUM *tertium, flore albo. C. B. P.* The white Spanish Broom.

3. SPARTIUM *Oriente humile, fructu villosa & rostrato. Tourn. Cor.* Dwarf Eastern Broom, with an hairy beaked Fruit.

4. SPARTIUM *Oriente, filiqua compressa, glabra & annulata. Tourn. Cor.* Eastern Broom, with a flat smooth, circular Pod.

5. SPARTIUM *Americanum, portulacæ foliis, aculeatum, eburni materie. Plum.* Prickly American Broom, with Purslain-leaves, whose Wood is taken for Ebony.

6. SPARTIUM *Americanum scandens*

dens, citri foliis, floribus albis, ad nodos confertim nascentibus. Plum. Climbing *American Broom* with Citron-leaves, and white Flowers, which are produc'd in Bunches at the Joints.

The first and second Sorts grow plentifully in *Spain* and *Portugal*; from both which Countries the Seeds may be easily procur'd. These Seeds should be sown in the Middle of *April*, upon a Bed of fresh light Earth: the best way will be to sow them in Drills about an Inch deep: the Drills should not be less than one Foot asunder, and the Seeds may be laid in the Drills at about three Inches Distance; which will allow room for the Plants to grow till *Michaelmas* following; before which time it will not be safe to remove them. Nor should they be suffer'd to stand longer; because they shoot downright Roots very deep into the Ground; and if these are cut or broken, when they are grown large, the Plants frequently miscarry. Although I have here directed the sowing of these Seeds in *April*, yet it must be understood, if the Season proves favourable; otherwise it will be better to defer it longer: for these Seeds are as subject to perish in the Ground, by Cold or Wet, as are the *Kidney-beans*; therefore when the Season is favourable to these, the Seeds of the Brooms may be safely sown.

At *Michaelmas* some of the Plants of each Kind may be taken up, and potted, to be shelter'd in Winter; and others may be planted in a warm Situation, and on a dry Soil; where, if the Winter should not prove severe, they will stand very well. It will also be proper to leave some of the Plants in the Seed-bed, where, if the Winter should prove severe, they may be shelter'd with Mats, and

some Mulch laid about their Roots, to prevent the Frost penetrating the Ground; for these Plants are so tender, as not to live abroad in hard Frost; though, in moderate Winters, they will do very well: but it is always necessary to have a Plant or two of each Sort in Pots, that they may be shelter'd in Winter to preserve the Sorts.

The third and fourth Sorts were discover'd by Dr. *Tournefort* in the *Lewant*, from whence he sent their Seeds into *France*; but these are at present pretty rare in *England*. These are as hardy as the other Sorts; so may be treated in the same way. All these Sorts grow to the Height of six or eight Feet, and have the Appearance of the *Spanish Broom*; but their Branches are much slenderer, and the Leaves are very small, as are also their Flowers: but the two first Sorts have been of late Years introduc'd in plenty into the *English* Gardens, where, being intermix'd with other Shrubs of the same Growth, they add to the Variety.

These flower in *July*; and, in very warm Seasons, they sometimes perfect their Seeds in *England*.

The third Sort is very common in *Jamaica*, and several other Places in the *West-Indies*; where the Wood is cut, and sent to *England*, under the Title of *Ebony*; though it is not the true *Ebony*, which is a Native of the Eastern Country, and is a Plant of a very different Genus. The Wood of this *American Ebony* is of a fine greenish-brown Colour, and polishes very well; so is much coveted by the Instrument-makers; and is used for several Purposes, being of a very hard, durable Nature.

The fourth Sort is pretty common in the *Spanish West-Indies*, from whence I have receiv'd the Seeds, which were collected by Mr. *Robert Millar*.

Millar. This is a climbing Plant, which will twist round whatever Trees grow near it, and will rise to a great Height. The Leaves of this Plant are thick and strong, somewhat resembling those of the Citron-tree; and continuing green the whole Year, they make an agreeable Variety in the Stove, amongst other tender Exotic Plants.

These Plants are propagated by Seeds, which must be procured from the Countries of their natural Growth; for they do not produce Seeds in this Climate. These Seeds should be sown in Pots fill'd with fresh light Earth, early in the Spring, and plung'd into a good Hot-bed of Tanners Bark. In about a Month after the Seeds are sown, the Plants will appear, when they must be carefully treated (being very tender while young): they must have fresh Air admitted to them every Day, when the Weather is warm; and should be frequently refresh'd with Water, when the Earth in the Pots appears dry. In about five or six Weeks after the Plants appear, they will be fit to transplant; when they should be carefully shaken out of the Pots, and separated, planting each into a small Pot fill'd with light rich Earth, and then plunge them into the Hot-bed again; being careful to shade them from the Sun every Day, until they have taken Root; after which time they must be treated in the same manner as other very tender Exotic Plants, by giving them Air every Day in warm Weather, and watering them every other Day gently; and, when the Nights are cold, to cover the Glasses. In this Hot-bed the Plants may remain till Autumn, when they must be remov'd into the Stove, and plung'd into the Bark-bed. Those of them whose Roots have filled the Pots, should

be carefully shifted into Pots one Size larger, before they are plunged; but as these Plants are not of quick Growth while young, they do not require to be often shifted out of the Pots. During the Winter-season these Plants must be kept very warm (especially the first Year), and must be frequently refresh'd with Water; but in cold Weather it must be given to them in small Quantities; and if their Leaves should contract Filth, they must be washed with a Sponge to clean them, otherwise the Plants will not thrive. As these Plants are very tender, they will not live in the open Air in this Country, even in the warmest Part of the Year; therefore they must be constantly kept in the Stove, and should be plung'd in the Bark-bed; observing in the Summer-season, when the Weather is warm, to admit a large Share of fresh Air to the Plants; but in Winter they must be kept very warm. With this Management the Plants will thrive very well, and in a few Years will produce their Flowers; when they will make a pretty Appearance in the Stove.

SPERGULA, Spurrey.

The Characters are;

It hath a rose-shap'd Flower, consisting of five Leaves, which are included in a five-leav'd Empalement: in the Centre of the Flower arises the Pointal, which afterward becomes a roundish membranaceous Fruit, which opens in three Parts, and is filled with small Seeds, which in some Species have a Border round them.

The Species are;

1. SPERGULA. *J. B.* The common Spurrey.
2. SPERGULA *marina nostras. J. B.* The Sea Spurrey.
3. SPERGULA *purpurea. J. B.* Purple Spurrey.
4. SPERGULA *minima, seminis*

marginatis. The least Spurrey, with border'd Seeds.

These Plants grow wild in several Parts of *England*: the second Sort is found on the Sea-shores, where the Salt-water usually flows; but the other Sorts grow on sandy Commons, and amongst Corn, in great Plenty.

The first Sort is cultivated in *Holland* and *Flanders*, for feeding their Cattle: the usual time of sowing the Seed is in *August*, that the Plants may acquire Strength before the Winter's Cold. The Use that is made of this Grass, is to feed Sheep, and other Cattle, in Winter, when the common Grass hath perfected its Growth. This Plant seldom rises above six Inches high; so will not afford a very great Quantity of Food; but as it will grow on the poorest Sand, it may be cultivated in many Places to good Advantage, where no other Grass will thrive so well; and by feeding it off the Ground, the Dung of the Cattle will improve the Land. This Pasture, it is affirm'd, will make excellent Butter; and the Mutton fed on it is said to be well tasted; so is by many prefer'd to that fed on Turneps. Hens will greedily eat this Herb, and it makes them lay more Eggs.

This Plant, being annual, must be sown every Year; and whoever is willing to save the Seeds, should sow it in *April*, that the Plants may flower the Beginning of *July*, and the Seeds will ripen in *August*; when it must be cut before the Heads are quite brown, otherwise the Seeds will soon scatter.

The Seeds being very small, about twelve Pounds will be sufficient to sow an Acre of Land. The Ground should be well dress'd before the Seeds are sown; for if the larger Clods are not broke, there will be an uneven Crop of Grass: People in

the low Country sow this Seed after a Crop of Corn is taken off the Land. The fourth Sort is now much cultivated in *Flanders*, though it is a much lower Plant than the common Sort; but they esteem it a much better Grass. The Seeds of this Kind are smaller and flatter than those of the common Sort, and have a white Border round each.

SPHONDYLIIUM, Cow - parsnep.

The Characters are;

It is an umbelliferous Plant, with a rose-shaped Flower, consisting of five uneven heart-shap'd Leaves, which are placed circularly, and rest on the Empalement; which after-ward becomes a Fruit, composed of two large Seeds, which are flat and oval, having a Point that wants a Border within, channell'd, and generally casting off their Cover, and marked with dark Spots, on the Part where they adhere to each other,

The Species are;

1. SPHONDYLIIUM *vulgare hirsutum*. C. B. P. Common hairy Cow-parsnep.

2. SPHONDYLIIUM *vulgare hirsutum, floribus purpureis*. C. B. P. Common hairy Cow-parsnep, with purple Flowers.

3. SPHONDYLIIUM *majus, sive panax Herculeum quibusdam*. J. B. Greater Cow-parsnep, or Hercules's All-heal.

4. SPHONDYLIIUM *crispum*. J. B. Curled Cow-parsnep.

5. SPHONDYLIIUM *hirsutum, foliis angustioribus*. C. B. P. Hairy Cow-parsnep, with narrower Leaves.

6. SPHONDYLIIUM *foliis angustioribus atro-purpureis*. H. R. Monsp. Cow-parsnep with narrower dark-purple Leaves.

7. SPHONDYLIIUM *Alpinum parvum*. C. B. P. Small Cow-parsnep of the Alps.

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8. SPHONDYLIIUM *Alpinum glabrum*. C. B. P. Smooth Cow-parfneep of the Alps.

9. SPHONDYLIIUM *Oriente maximum*. Tourn. Cor. Greatest Eastern Cow-parfneep.

10. SPHONDYLIIUM *Oriente, amplissimo folio, caule brevis*. Tourn. Cor. Eastern Cow-parfneep, with a very large Leaf, and a short Stalk.

11. SPHONDYLIIUM *Oriente, longissimo & angustissimo folio*. Tourn. Cor. Eastern Cow-parfneep, with a very long and very narrow Leaf.

12. SPHONDYLIIUM *Oriente angustifolium glabrum, anisum olens*. Tourn. Cor. Smooth narrow-leav'd Eastern Cow-parfneep, smelling like Anise.

13. SPHONDYLIIUM *Oriente, foliis ammi perennis*. Tourn. Cor. Eastern Cow-parfneep, with perennial Bishops-weed-leaves.

14. SPHONDYLIIUM *Oriente humilissimum, foliis absinthii*. Tourn. Cor. Dwarf Eastern Cow-parfneep, with Wormwood-leaves.

15. SPHONDYLIIUM *Oriente, dauci vulgaris folio, asphodeli radice*. Tourn. Cor. Eastern Cow-parfneep, with a common Carrot-leaf, and an Asphodel-root.

The first and fifth Sorts grow wild in England: the first is very common on the Sides of Ditches, and the Borders of Fields, in moist Land every-where. The other Sorts are not Natives of this Country; but are many of them preserv'd in Botanic Gardens, for the sake of Variety.

They are all very hardy Plants, which may be propagated by Seeds: the best time for sowing them is in Autumn, soon after the Seeds are ripe. They should be sown where the Plants are design'd to remain; because they send forth Tap-roots, somewhat like those of the Parsnep;

therefore do not thrive so well when transplanted, as if suffer'd to remain where they are sown. The Plants grow very large; wherefore the Seeds should be sown in Drills, at two Feet and an half Distance; and in the Spring, when the Plants appear, they should be thinned, so as to leave them at least eighteen Inches asunder, in the Rows; after which they will require no farther Care, but to keep them clear from Weeds; and when the Plants have obtained Strength, they will not easily be injur'd by Weeds; for they will overbear them, and prevent their getting up. The second Year these Plants will produce Flowers and Seeds, and their Roots will abide many Years, and produce Seeds every Year; which, if permitted to scatter, will fill the neighbouring Ground, and become troublesome Weeds.

The third Sort (which is very common in Germany) hath been, by some of the German Writers, taken for the *Acanthus*, or Bears-breech; and the same Qualities apply'd to it.

The Name of Cow-parfneep was given to this Plant, from the Cows eating of it; but they do not choose to eat the Leaves of this Plant, if they can get any other Food, as may be observ'd in the Fields where the Plant is in great Plenty; for the Cows will eat the Grass very close about these Plants, though they are rarely found to be touch'd by them, unless when the Grass is burnt up. Rabbits will eat the Leaves of this Plant, and seem fond of it.

SPINA ALBA. Vide Mespilus.

SPINACHIA, Spinach, or Spinnage.

The Characters are;

It hath an apetalous Flower, consisting of many Stamina included in the Flower-cup, which are produc'd in Spikes upon the Male Plants, which are

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are barren : but the Embryoes are produc'd from the Wings of the Leaves on the Female Plants, which afterward becomes a roundish or angular Seed, which in some Sorts has Thorns adhering to it.

The Species are ;

1. SPINACHIA *vulgaris, capsula feminis aculeata*. Tourn. The common prickly or narrow-leav'd Spinach.

2. SPINACHIA *vulgaris, capsula feminis non aculeata*. Tourn. Common smooth-seeded Spinach, with broader Leaves.

3. SPINACHIA *vulgaris, capsula feminis non aculeata, folio maximo rotundo*. Spinach with smooth Seeds, and a very large round Leaf.

The first of these Sorts is commonly cultivated in Gardens for Winter-use ; it being much hardier than any of the other Sorts.

The Seeds of this Kind should be sown upon an open Spot of Ground towards the Latter-end of July ; observing, if possible, to do it when there is an Appearance of Rain : for if the Season should prove dry for a long time after the Seed is sown, the Plants will not come up regularly ; and many times there will not be half a Crop. When the Spinach is come up, the Ground should be hoed to destroy the Weeds, and also to cut up the Plants where they are too close, leaving the remaining Plants about three or four Inches asunder ; but this should always be done in dry Weather, that the Weeds may be destroy'd soon after they are cut.

About a Month or five Weeks after the first Hoeing, the Weeds will begin to grow again ; therefore the Ground should be then hoed again the second time, observing, as before, to do it in dry Weather. But if the Season should prove moist, it

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will be proper to gather the Weeds up after they are cut, and carry them off the Ground ; for if the Spinach is not clean'd from Weeds before Winter, they will grow up, and stifle it so, that in wet Weather the Spinach will rot away.

In October the Spinach will be fit for Use ; when you should only crop off the largest Leaves, leaving those in the Centre of the Plants to grow bigger ; and thus you may continue cropping it all the Winter and Spring, until the young Spinach, sowed in the Spring, is large enough for Use, which is commonly in April ; at which time the Spring advancing, the Winter-spinach will run up to Seed ; so that the Roots should be then cut up, leaving only a small Parcel to produce Seeds.

But the Ground in which this Winter-spinach is sown, being commonly planted with early Cabbages, it is not proper to let any of the Spinach remain there for Seed ; but it should be cleared off as soon as ever the Spring Spinach is fit for Use, that the Cabbages may be earth'd up, and laid clear, which is of great Service to them ; therefore you should sow a small Spot of Ground with this Sort of Spinach, on purpose to stand for Seed ; where there should be no other Plants among it.

The two Sorts with smooth Seeds produce much larger and thicker round Leaves than the former ; but being somewhat tenderer, are always sown in the Spring ; especially the third Sort, which is preferable to either of the former for Summer-use.

These are either sown upon an open Spot of Ground by themselves, or else mix'd with Radish-feed, as is the common Practice of the London Gardeners, who always endeavour

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to have as many Crops from their Land in a Season as possible; but, where Land is cheap in the Country, it will be the better Method to sow it alone without any other Sort of Seed mix'd with it; and when the Plants are come up, the Ground should be hoed to destroy the Weeds, and cut out the Plants where they are too close, leaving the remaining about three Inches asunder: and when they are grown so large as to meet, you may then cut out a Part of it for Use, thinning the Plants, that they may have room to spread: and this Thinning may be twice perform'd, as there is Occasion for the Spinach; at the last of which, the Roots should be left eight or ten Inches asunder. If then you hoe the Ground over again, to destroy the Weeds, it will be of great Service to the Spinach; for if the Land is good upon which it was sown, the third Sort, with this Management, will many times produce Leaves as large as the broad-leav'd Dock, and be extremely fine.

But in order to have a Succession of Spinach through the Season, it will be proper to sow the Seed at three different times in the Spring; the first early in *January*, which must be on a dry Soil; the second the Beginning of *February*, upon a moister Soil; and the third the Beginning of *March*, which should be on a very moist: and this third Sowing should be hoed out thinner at the first time of hoeing it, than either of the former Sowings; for there will be no Necessity to leave it for cutting out thin for Use, because the former Sowings will be sufficient to supply the Table till this third Sowing is full-grown: besides, by leaving it thin at first, it will not be apt to run up to Seed so soon as it would if the Plants were close.

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These Sowings here mention'd are such as are practis'd by the Kitchen-gardeners near *Loudon*; but as this Herb is much us'd in Soups, &c. for great Tables, there should be some Seeds sown every three Weeks, during the Summer-season, to supply the Kitchen: but these late Sowings should be on moist Ground, otherwise, if the Summer proves hot and dry, the Spinach will run to Seed before the Plants obtain Strength.

In order to save Seed of either of these Kinds, you should sow an open rich Spot of Ground, with the Sort you intend, in *February*, after the Danger of being injur'd by Frost is over; and when the Plants are come up, they should be hoed out to six or eight Inches Distance, observing to cut down the Weeds at the same time; and when the Plants have grown about three Weeks or a Month longer, they should be hoed a second time, when they should be left twelve or fourteen Inches asunder at least; for when they have shot out their Side-branches, they will sufficiently spread over the Ground.

You must also observe to keep them clear from Weeds, which, if suffer'd to grow amongst the Spinach, will cause it to run up weak, and greatly injure it. When the Plants have run up to Flower, you will easily perceive two Sorts amongst them, *viz.* Male and Female; the Male will produce Spikes of stameneous Flowers, which contain the *Fazrina*, and are absolutely necessary to impregnate the Embryoes of the Female Plants, in order to render the Seeds prolific. These Male Plants are, by the Gardeners, commonly call'd *She Spinach*; and are often, by the Ignorant, pull'd up as soon as they can be distinguish'd from the Female, in order, as they suppose to give room for the Seed-bearing to spread:

spread: but from Experiments which I made on these Plants, I find, where-ever the Male Plants are intirely remov'd before the *Farina* is shed over the Female Plants, the Seed will not grow which they produce; so that it is absolutely necessary to leave a few of them in every Part of the Spot, tho' there may be a great many drawn out where they are too thick; for a small Quantity of Male Plants (if rightly situated) will be sufficient to impregnate a great Number of Female; because they greatly abound with the *Farina*, which, when ripe, will spread to a considerable Distance, when the Plants are shaken by the Wind.

When the Seeds are ripe (which may be known by their changing their Colour, and beginning to shatter), the Plants should be drawn up, and spread abroad for a few Days to dry; observing to turn the Plants every other Day, that the Seeds on both Sides may dry equally: you must also guard the Seeds from Birds, otherwise they will devour them. When it is dry, the Seeds should be thresh'd out, and clean'd from the Dirt, and laid where Mice cannot come to them; for they are extremely fond of this Seed.

SPIRÆA FRUTEX, *Spiræa Frutex*, *vulgo*.

The Characters are;

The Flower is compos'd of many Leaves, which are plac'd in a circular Order, and expand in form of a Rose: out of whose Flower-cup rises the Pointal, which afterward becomes a Fruit compos'd of several Pods, in which are contain'd several oblong Seeds.

The Species are;

1. **SPIRÆA salicis folio**. *Tourn.* *Spiræa Frutex*, *vulgo*.

2. **SPIRÆA opuli folio**. *Tourn.* *Spiræa* with a Marsh-elder-leaf, com-

monly call'd *Virginian Gelder-rose* with a Curran-leaf.

3. **SPIRÆA hyperici folio non crenato**. *Tourn.* *Hypericum Frutex*, *vulgo*.

4. **SPIRÆA Hispanica**, *hyperici folio crenato*. *Inst. R. H.* *Spanish Spiræa*, with a notched Leaf.

5. **SPIRÆA Americana**, *foliis oblongis crenatis, floribus albis*. *American Spiræa*, with oblong crenated Leaves, and white Flowers.

6. **SPIRÆA Americana**, *foliis rotundis glabris minime serratis, floribus rubris*. *American Spiræa*, with round smooth Leaves, a little sawed on the Edges, and a red Flower.

The first of these Shrubs is very common in the Nurseries near *London*, where it is sold with other flowering Shrubs at a certain Price by the Hundred. This Shrub seldom rises above five Feet high; so is proper to intermix with other Shrubs of the same Growth, in small Wilderness-quarters, and other Plantations of flowering Trees.

This Plant may be propagated from Suckers, which are sent forth in plenty from the Stems of the old Plants, or by laying down the tender Branches, which, when rooted, should be transplanted out in Rows at three Feet Distance, and the Plants a Foot asunder in the Rows. In this Nursery they may remain two Years, observing to keep the Ground clear from Weeds, and in the Spring to dig up the Ground between the Rows, so that the Roots may the more easily extend themselves; and if they shoot out many Side-branches, they should be pruned off, so as to reduce the Shrubs to a regular Figure; and afterward they may be transplanted where they are to remain, either in small Wilderness-quarters, or in Clumps of flowering Shrubs, observing to place them amongst

amongst other Sorts of equal Growth.

The second Sort is not quite so common in *England* as the former. This was originally brought from *America*; but it being full as hardy as the former, and increasing as fast by Suckers, it may soon be obtained in Plenty. This is nearly of the same Growth with the former, and may be intermixed therewith in Wilder-ness-quarters, to add to the Variety: it may be propagated and managed in the same manner as the former.

The third Sort is very common in the Nurseries near *London*, where it is generally known by the Name of *Hypericum Frutex*, and is sold amongst other flowering Shrubs at a common Rate. This may be propagated by laying down the Under-branches, which will take Root in the Compass of one Year, when they may be taken off, and planted in a Nursery for two or three Years (as hath been directed for the former); after which they may be transplanted out where they are design'd to remain, placing them with the two former, being nearly of the same Growth, where they will add to the Variety.

The fourth Sort differs from the third in nothing but the Leaves being notched on their Edges: this is not very common at present in the Nursery-gardens: nor will it be ever regarded as a different Species, but by those who are nice in the distinguishing of the minute Difference in Plants; because the whole Appearance of the Plants is the same.

The two first Sorts produce their Flowers at the Extremity of their Shoots, the first in a long Spike, and the second in form of an Umbel; but the third Sort produces its Flowers at the Joints of the former Year's Wood, in Bunches; so that the whole

Tree seems cover'd with white Flowers, when they are blown. They all three produce their Flowers in *May*, and sometimes continue in Beauty till *June*, in a cool Season; for which they are esteemed by the Curious.

These Shrubs require no other Pruning, but to cut out all the dead Branches, and such as grow irregular, and take off all their Suckers every Year; for if these are permitted to grow, they will starve the old Plants, by drawing away their Nourishment. The Ground between them should also be dug every Spring, to encourage their Roots; and every third Year a little rotten Dung buried therein, which will cause them to flower very strong.

The two *American* *Spiræas* have been lately introduced into the *English* Gardens from *Pensylvania*: these are low Shrubs, which seldom rise above three Feet high: their Shoots are slender; and the Flowers are produced at the Extremity of the Branches, in Spikes: these seldom flower until the End of *June*, or the Beginning of *July*, after the other Sorts are past; so they are more esteemed on that Account: they may be propagated by laying down their Branches in the same manner as the common Sort: but these should be planted in a warm-shelter'd Situation, otherwise their Shoots will be destroyed by the Cold in Winter.

AFRICAN SPIRÆA. *Vide* Diosma.

SQUASHES. *Vide* Melopepo.

SQUILLS. *Vide* Scilla.

STACHYS, Base Horehound.

The Characters are;

It hath a labiated Flower, consisting of one Leaf, whose Upper-lip is somewhat arch'd and erect; and the Under-lip is cut into three Segments, the middle one being larger than the
other

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either two : out of the Flower-cup rises the Pointal, attended by four Embryoes ; which afterward become so many Seeds, which are roundish, and inclos'd in an Husk, which before was the Flower-cup : to these Marks may be added, Downy hoary Leaves.

The Species are ;

1. STACHYS major Germanica. C. B. P. Greater German Base Horehound.

2. STACHYS Cretica. C. B. P. Base Horehound of Candia.

3. STACHYS Cretica latifolia. C. B. P. Broad-leav'd Base Horehound of Candia.

4. STACHYS minor Italica. C. B. P. Lesser Italian Base Horehound.

5. STACHYS Canariensis frutescens, verbasci folio. Tourn. Canary shrubby Base Horehound, with a Mullein-leaf.

There are several other Species of this Plant, which are preserv'd in some curious Botanic Gardens for Variety : but as they have little Beauty or Use, I shall not enumerate them here.

The four Sorts first-mentioned seldom abide longer than two or three Years ; for after they have produced Flowers and Seeds, the old Roots are very apt to decay, unless Part of their Flower-stems are taken off early in the Summer, which will cause them to break out again at Bottom, whereby the Roots may be preserv'd.

They are all propagated by Seeds, which should be sown in March, upon a Bed of fresh light Earth ; and when the Plants are come up, they may be planted out into other Beds about six Inches asunder, observing to water them until they have taken Root ; after which they will require no farther Care, but to keep them clear from Weeds, till Michaelmas, when they should be transplanted

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where they are to remain, which must be in an open Situation, and upon a dry light Soil, not too rich ; in which they will endure the Winter much better than in a rich strong Soil. The Summer following these Plants will flower, and in August their Seeds will ripen ; when they may be gather'd and preserv'd till Spring for sowing.

The fifth Sort is a shrubby Plant, which with us rises to be six or seven Feet high : this is propagated by sowing the Seeds upon a Bed of fresh light Earth, as the former ; and when the Plants are come up, they must be transplanted into Pots fill'd with fresh light sandy Soil, placing them in a shady Situation, until they have taken Root ; after which they may be removed into a more open Exposure ; but in dry Weather must be frequently watered : in this Place they may remain until the Middle or Latter-end of October, when they must be removed into the Greenhouse, placing them in the coolest Part, where they may have as much free Air as possible ; and must be often water'd, otherwise they will soon decay.

In Summer-time these Plants will require to be shifted twice, adding fresh Earth to their Roots ; and if they are only sheltered from hard Frost in Winter, it will be sufficient, for they are pretty hardy. The second Year after sowing, they will produce Flowers and Seeds, and will continue so to do every Year after ; and altho' their Flower has no great Beauty, yet, for the Variety of its large, soft, woolly Leaves, it deserves a Place amongst other Exotic Plants.

STAPHYLODENDRON, Bladder-nut.

The Characters are ;

The Flower consists of several Leaves,

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Leaves, which are placed circularly, and expand in form of a Rose; out of whose many-leav'd Flower-cup rises the Pointal; which afterward becomes a membranous Fruit, somewhat like the inflated Bladder of Fishes, and divided into two or three Cells, containing Seeds in form of a Skull.

The Species are;

1. STAPHYLODENDRON *sylvestre* & *vulgare*. H. L. The common wild Bladder-nut.

2. STAPHYLODENDRON *Virginianum trifoliatum*. H. L. Three-leav'd Virginian Bladder-nut.

3. STAPHYLODENDRON *Americana trifoliatum, foliis incis.* Houst. Three-leav'd American Bladder-nut, with cut Leaves.

The third Sort was discovered at Campechy, by the late Dr. William Houstoun, who sent the Seeds to England: this Sort hath weak flexible Branches, and generally sends out several Shoots from the Root, so forms a thick Bush: the Shoots grow very irregular; therefore the Plants cannot be trained in any Order: the Flowers are produced in small Bunches, at the Ends of the Branches, which are succeeded by compressed Bladders, having a leafy Border: the Seeds are small and round.

This Sort is very tender; so cannot be preserved through the Winter in England, unless it is placed in a warm Stove: it may be propagated by laying down the tender Branches, which will take Root in one Year; and may then be planted into separate Pots, and plunged into the Tan-bed in the Stove; which will promote their taking fresh Root: in the Summer these Plants will require a large Share of fresh Air, when the Weather is warm; but in Winter they must be kept warm, otherwise the Plants will soon perish.

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The first of these Trees is found wild in the Woods, and other shady Places, near Pontefract in Yorkshire, and in some other Northern Parts of England; but near London it is preserved in the Gardens of those who are curious in collecting the various Kinds of hardy Trees.

The second Sort is a Native of America; but is so hardy, as to endure the severest Cold of our Climate in the open Air, and produces Flowers and Fruit as plentifully in England as the common wild Sort.

Both these Kinds may be propagated by sowing their Seeds early in Spring, in Beds of fresh light Earth; and when the Plants are come up, they must be carefully kept clear from Weeds; and in very dry Weather, if they are now-and-then refreshed with Water, it will greatly promote their Growth: in these Beds they may remain until October following; at which time they should be carefully taken up, and planted in a Nursery, placing them in Rows three Feet asunder, and the Plants eighteen Inches Distance in the Rows. In this Nursery they may remain two or three Years; by which time it will be proper to transplant them out where they are to remain, either in Wilderness-quarters, or in Clumps of various Trees, where they will add to the Diversity. The best Season for transplanting these Trees is in Autumn, with other deciduous Trees.

These commonly grow in England to the Height of twelve or fourteen Feet; so should be placed with other Trees of the same Growth.

AFRICAN BLADDER-NUT. *Vide* Royenia.

LAUREL-LEAV'D AMERICAN BLADDER-NUT. *Vide* Dodonæa.

STAR-FLOWER. *Vide* Ornithogalum.

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STARWORT. *Vide* After.

STATICE, Thrift or Sea-pink.

The Characters are;

It is a Plant with a Flower gathered into an almost spherical Head, furnish'd with a common scaly Empalement: this Head is composed of several Clovegillflower-flowers, consisting of several Leaves in a proper Empalement, shaped like a Funnel: in like manner, the Pointal rises out of the same Empalement, and afterward turns to an oblong Seed, wrapt up in the Empalement, as in an Husk.

The Species are;

1. **STATICE**. *Lugd.* Thrift, Sea-gilliflower, or Sea-cushion.

2. **STATICE** *montana minor.* Tourn. Lesser Mountain-thrift, or Sea-gilliflower.

3. **STATICE** *foliis angustioribus, flore rubro.* Boerb. Ind. Narrow-leav'd Thrift, with red Flowers.

4. **STATICE** *foliis angustioribus, flore albo.* Boerb. Ind. Narrow-leav'd Thrift, with a white Flower.

5. **STATICE** *Lusitanica fruticosa maritima, magno flore.* Tourn. Shrubby Portugal Sea-thrift, with a large Flower.

6. **STATICE** *Lusitanica, scorzonæ folio.* Tourn. Portugal Thrift, with a Leaf like Scorzonera, or Vipers-grass.

7. **STATICE** *Lusitanica, capillaceo folio, major.* Tourn. Greater Portugal Thrift, with a narrow Leaf.

8. **STATICE** *maritima humillima, folio capillaceo rigido.* Tourn. The lowest Sea-thrift, with a very narrow stiff Leaf.

The first of these Plants grows wild in Germany, and some other inland Countries, in great Plenty; from whence it hath been brought to England; but the second Sort is found wild in great Plenty in the salt Marshes near the Sea, in divers Parts of England.

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The third and fourth Sorts have been brought into England from the Alps, or some other mountainous Parts; and are preserved, for the Beauty of their Flowers, in some old Gardens.

The fifth Sort is less common in England than either of the former Sorts; and is only to be found in the Gardens of such as are curious in collecting rare Plants.

The sixth, seventh, and eighth Sorts are Natives of Portugal and Spain; but are hardy enough to thrive in the open Air in England: these Sorts are preserved in the Gardens of those who are curious in collecting of rare Plants: but as they have but little Beauty, they are not much propagated in other Gardens.

The first four Sorts have been promiscuously planted in Gardens, to make Edgings on the Sides of Borders in the Flower-gardens; for which Purpose they were formerly in great Esteem; but of late they have been very justly rejected for that Use; because there was a Necessity of transplanting these Edgings every Year, otherwise they could not be kept within due Bounds: besides, where-ever a Plant fail'd, which was no extraordinary thing, there always appear'd a large unsightly Gap: however, tho' they are not in Use at present for that Purpose, yet a few Plants of the first, third, fourth, and fifth Sorts should have a Place in some Part of the Flower-garden, for Variety; especially the third and fourth, which are extreme hardy Plants, and will grow in almost any Soil or Situation; and their Flowers will continue a long time in Beauty.

All these Sorts may be propagated by parting their Roots; the best time for which is in Autumn, that they may take

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take Root before the Frost, which will cause them to flower much stronger than those transplanted in the Spring; and the Plants will not be in so much Danger of miscarrying as those are, especially when the Spring happens to prove dry. After these Plants have taken Root, they will require no farther Care, but to keep them clear from Weeds; and the May following they will begin to flower, which will continue in Beauty three Weeks or a Month, provided the Season be not too hot and dry.

The *Portugal* Sort is not so hardy as either of the former, tho' it will endure the Cold of our ordinary Winters very well in the open Air, provided it is planted in a dry Soil, and a warm Situation; but in very severe Frosts it is often destroyed. This may also be propagated by Cuttings or Slips, which should be planted in a Bed of fresh Earth in the Spring, and water'd and shaded until they have taken Root; after which they must be kept clear from Weeds till *Michaelmas*, when they should be planted either into Pots to be sheltered in Winter, or in some warm Situation in the full Ground, where they may remain to flower.

This Plant will grow two or three Feet high, and become shrubby, provided it be not injur'd by Cold.

STOCK-GILLIFLOWER. *Vide* *Leucoium*.

STOECHAS, *Cassidony*, *French* Lavender, or *Stickadore*.

The *Characters* are;

It hath a labiated Flower, consisting of one Leaf; whose Upper-lip is upright, and cut in two, but the Under lip, or Beard, is cut into three Parts; but both are so divided, as at first to appear like a Flower cut into five Segments; out of whose Flower-cup rises the Pointal, attended by four

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Embryoes, which afterward become so many roundish Seeds, inclosed in the Flower-cup: to these Marks must be added, That the Flowers are ranged in a various Series into scaly Heads; out of the Top of which peep some small Leaves, which look very beautifully.

The *Species* are;

1. STOECHAS *purpurea*. C. B. P. Purple *Stoechas*, or *Cassidony*, commonly called *Arabian Stoechas*.

2. STOECHAS *folio serrato*. C. B. P. *Cassidony*, or *French Lavender*, with a *ferrated Leaf*.

3. STOECHAS *cauliculis non foliatis*. C. B. P. *Cassidony*, or *French Lavender*, with long naked Flower-stalks.

The Heads of Flowers of the first Kind are used in some of the capital Medicines directed by the College of Physicians: these are commonly brought from the South Parts of *France*, where the Plants are in great Plenty; but they are very apt to take a Mouldiness in their Passage, and so are not near so good for Use as those which are gathered fresh in *England*, where they may be cultivated to great Advantage.

The second and third Sorts are preserved in many curious Gardens, for Variety; but they are not of any Use.

All these Plants may be cultivated by sowing their Seeds upon a Bed of light dry Soil in *March*; and when the Plants are come up, they should be carefully clear'd from Weeds until they are two Inches high; at which time they should be removed; therefore there must be a Spot of light dry Ground prepared, and laid level, which must be trodden out in Beds; into which the Plants should be planted at about five or six Inches Distance each Way, observing to water and shade them until they have taken Root; after which they will

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require no further Care, but to keep them clear from Weeds the following Summer; but if the Winter should prove very severe, it will be proper to cover them with Mats, Peas-haulm, or some other light Covering, to guard them against the Frost, which otherwise would be apt to injure them while they are so young: but in *March*, or the Beginning of *April*, the following Spring, they must be removed into the Places where they are to remain; observing, if possible, to transplant them in a warm moist Season, and not to let them remain long above-ground; for if their Roots are dry'd, they seldom grow well after. The Soil in which these are planted should be a dry warm Sand or Gravel; and the poorer the Soil is in which they are planted, the better they will endure the Cold of the Winter, provided the Ground be dry; tho' indeed the Plants will thrive better in Summer upon a rich moist Ground; but then they will not produce so many Flowers, nor will the Plant afford near so strong an aromatic Scent; as is the Case with most Sorts of aromatic Plants.

These Plants may also be propagated by planting Slips or Cuttings of any of the Kinds in the Spring, observing to refresh them with Water until they have taken Root; after which they may be managed as hath been directed for the Seedling-plants; but as those Plants, raised from Seeds, are much better than these, it is hardly worth while to propagate them this way, especially since their Seeds ripen so well in this Country.

The Heads of the first Sorts may be gather'd for Use when the Flowers are in full Perfection, and spread to dry in a shady Place; after which they may be put up for Use.

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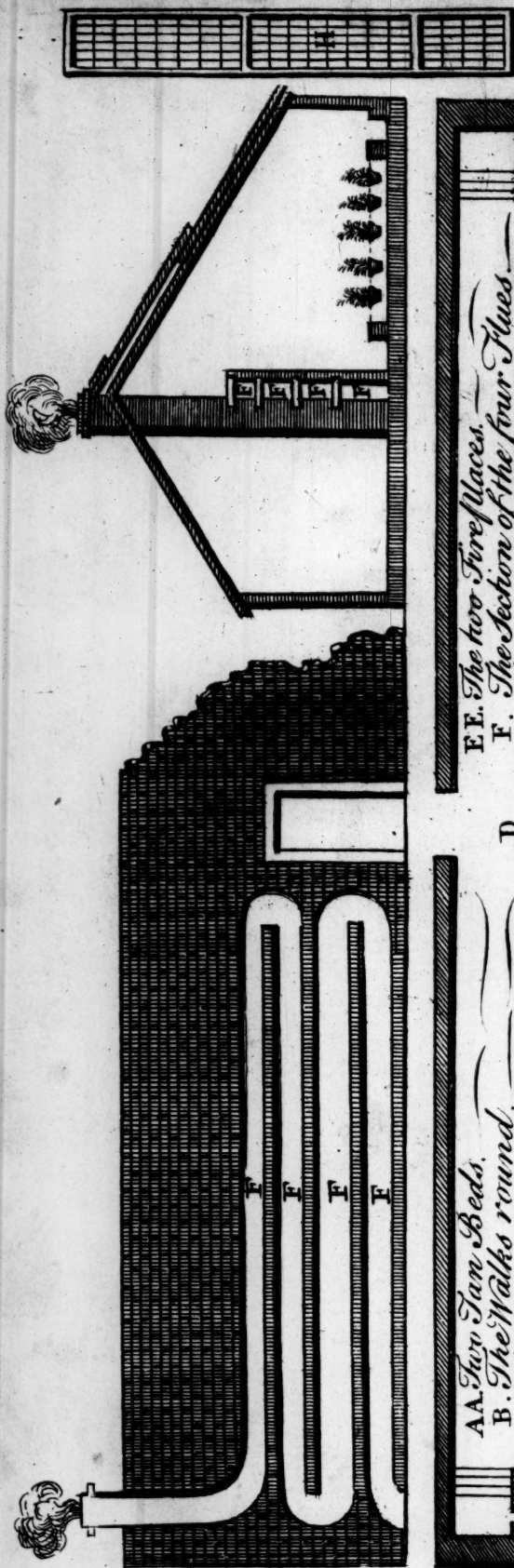
STONECROP. *Vide Sedum.*

STONECROP - TREE. *Vide Chenopodium.*

STOVES are Contrivances for the preserving such tender Exotic Plants, as will not live in these Northern Countries, without artificial Warmth in Winter. These are built in different Methods, according to the Ingenuity of the Artist, or the different Purposes for which they are intended; but in *England* they are at present reducible to two.

The first is call'd a Dry Stove, being so contriv'd, that the Flues through which the Smoke passes are either carried under the Pavement of the Floor, or else are erected in the Back-part of the House, over each other, and are returned six or eight times the whole Length of the Stove. In these Stoves the Plants are placed on Shelves of Boards laid on a Scaffold above each other, for the greater Advantage of their standing in Sight, and enjoying an equal Share of Light and Air. In these Stoves are commonly placed the tender Sorts of Aloes, Cereus's, Euphorbiums, Tithymals, and other succulent Plants, which are impatient of Moisture in Winter; and therefore require, for the most part, to be kept in a separate Stove, and not placed among Trees, or herbaceous Plants, which perspire freely, and thereby often cause a damp Air in the House, which is imbibed by the succulent Plants, to their no small Prejudice. These Stoves may be regulated by a Thermometer, so as not to over-heat them, nor to let the Plants suffer by Cold; in order to which, all such Plants as require nearly the same Degree of Heat, should be placed by themselves in a separate House; for if in the same Stove there are Plants placed of many different Countries, which require





AA. Two Tan Beds.

B. The Walks round.

C. The Flues against the back Wall.

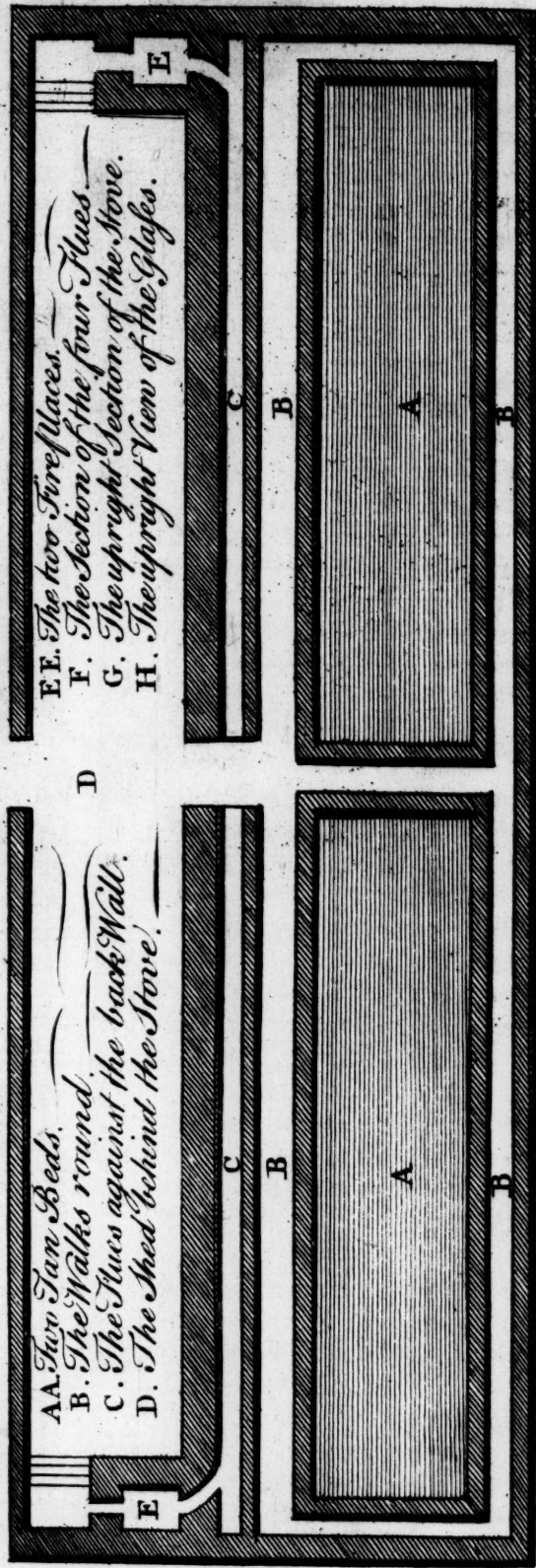
D. The Shed behind the Stove.

EE. The two Fire Places.

F. The Section of the four Flues.

G. The upright Section of the Stove.

H. The upright View of the Glazes.



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as many different Heats, by making the House warm enough for some Plants; others, by having too much Heat, are drawn and spoil'd.

The other Sort of Stoves are commonly call'd Bark Stoves, to distinguish them from the Dry Stoves already mention'd. These have a large Pit, nearly the Length of the House, three Feet deep, and six or seven Feet wide; according to the Breadth of the House; which Pit is fill'd with fresh Tanners Bark to make an Hot-bed; and in this Bed the Pots of the most tender Exotic Trees, and herbaceous Plants, are plunged: the Heat of this Bed being moderate, the Roots of the Plants are always kept in Action; and the Moisture detain'd by the Bark keeps the Fibres of their Roots in a ductile State, which in the Dry Stove, where they are placed on Shelves, are subject to dry too fast, to the great Injury of the Plants. In these Stoves, if they are rightly contriv'd, may be preserved the most tender Exotic Trees and Plants, which, before the Use of the Bark was introduced, were thought impossible to be kept in *England*: but as there is some Skill required in the Structure of both these Stoves, I shall not only describe them as intelligibly as possible, but also annex a Plan of the Bark Stove hereto; by which it is hoped every curious Person will be capable of directing his Workmen in their Structure.

The Dimension of this Stove should be proportion'd to the Number of Plants intended to be preserved, or the particular Fancy of the Owner; but their Length should not exceed forty Feet, unless there are two Fir-places; and in that Case it will be proper to make a Partition of Glass in the Middle, and to have two Tan-pits, that there

may be two different Heats for Plants from different Countries (for the Reasons before given in the Account of the Dry Stoves); and were I to erect a Range of Stoves, they should be all built in one, and only divided with glass Partitions, at least the half way toward the Front; which will be of great Advantage to the Plants, because they may have the Air in each Division shifted by sliding the Glasses of the Partitions, or by opening the Glass-door, which should be made between each Division, for the more easy Passage from one to the other.

This Stove should be raised above the Level of the Ground, in proportion to the Driness of the Place; for if it be built on a moist Situation, the Whole should be placed upon the Top of the Ground; so that the Brick-work in Front must be raised three Feet above the Surface, which is the Depth of the Bark-bed, whereby none of the Bark will be in Danger of lying in Water; but if the Soil be dry, the Brick-work in Front need not be more than one Foot above-ground, and the Pit may be sunk two Feet below the Surface. Upon the Top of this Brick-work in Front must be laid the Plate of Timber, into which the Wood-work of the Frame is to be mortised; and the upright Timbers in Front must be placed three Feet asunder in the Clear, or somewhat more, which is the Proportion of the Width of the Glass-doors or Sashes: these should be about six Feet and an half, or seven Feet long, and plac'd upright; but from the Top of these should be sloping Glasses, which should reach within three Feet of the Back of the Stove, where there should be a strong Crown-piece of Timber placed, in which there should be a Groove made for the Glasses to slide

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into. The Wall in the Back-part of the Stove should be at least thirteen Inches thick; but eighteen Inches is still better; because the thicker the outside Wall is built, the more the Heat of the Flues will be kept in the House; and carried up, about nine Feet above the Surface of the Bark-bed; and from the Top of this Wall, there should be a sloping Roof to the Crown-piece where the Glasses slide in. This Crown-piece should be about sixteen Feet high from the Surface of the Bark-bed or Floor, which will give a sufficient Declivity to the sloping Glasses to carry off the Wet, and be of a reasonable Height for containing Plants of a moderate Size. The Back-roof may be slated, cover'd with Lead, or tiled, according to the Fancy of the Owner: but the Manner of this outside Building is better express'd by the annex'd Plan, than is possible to be described in Words.

In the Front of the House there should be a Walk, about eighteen or twenty Inches wide, for the Convenience of walking; next to which the Bark-pit must be placed, which should be in Width proportionable to the Breadth of the House: if the House is twelve Feet wide, which is a due Proportion, the Pit may be seven Feet wide; and behind the Pit should be a Walk eighteen Inches wide, to pass in order to water the Plants, &c. then there will be twenty-two Inches left next the Back-wall, to erect the Flues, which must be all raised above the Top of the Bark-bed: these Flues ought to be one Foot wide in the Clear, that they may not be too soon stopped with the Soot; and the lower Flue, into which the Smoke first enters from the Fire, should be two Feet deep in the Clear; and this may be covered with broad Tiles; over this

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the second Flue must be returned back again; which may be eighteen Inches deep, and covered on the Top as before; and so in like manner the Flues may be returned over each other three or four times, that the Heat may be spent before the Smoke passes off. The Thickness of the Wall in Front of these Flues need not be more than four Inches; but it must be well jointed with Morter, and plaster'd within side to prevent the Smoke from getting into the House; and the Outside should be plastered with Morter, and covered with a coarse Cloth to keep the Morter from cracking, as it is practis'd in setting up Coppers: if this be carefully done, there will be no Danger of the Smoke entering the House, which can't be too carefully guarded against; for there is nothing more injurious to Plants than Smoke, which will cause them to drop their Leaves; and if it continue long in the House, will intirely destroy them.

The Fire-place may be made either at one End, or in the Middle, according as there is most Convenience; for where-ever it is plac'd, it should have a Shed over it, and not be expos'd to the open Air; for it will be impossible to make the Fire burn equally, where the Wind has full Ingress to it; and it will be troublesome to attend the Fire in wet Weather, where it is expos'd to the Rain.

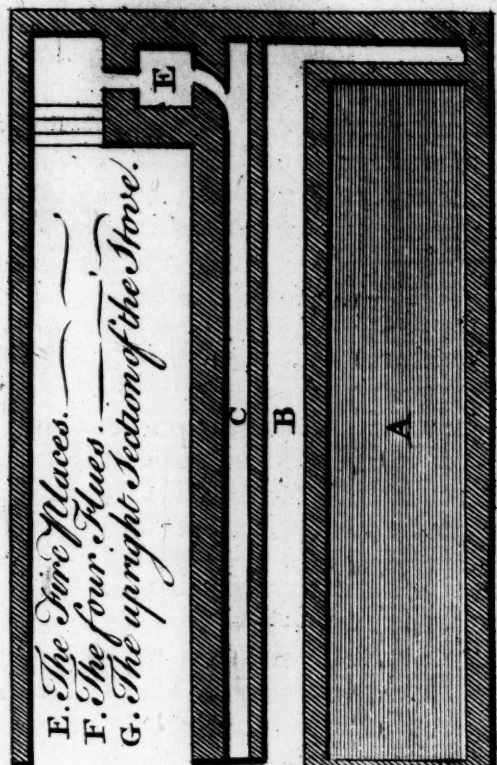
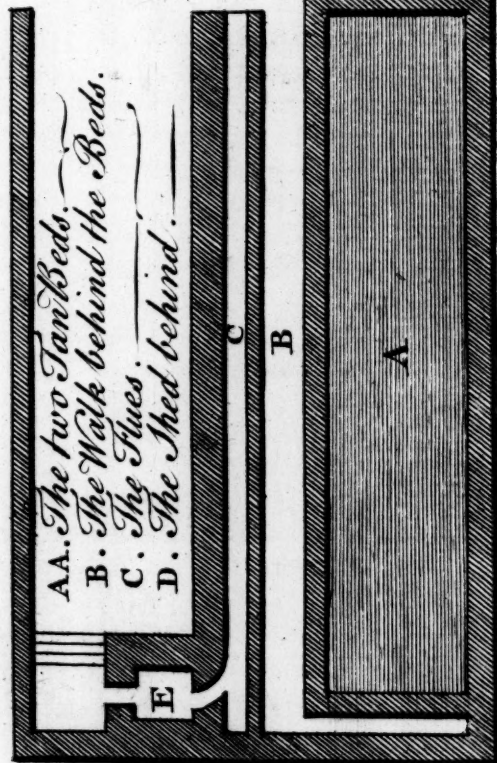
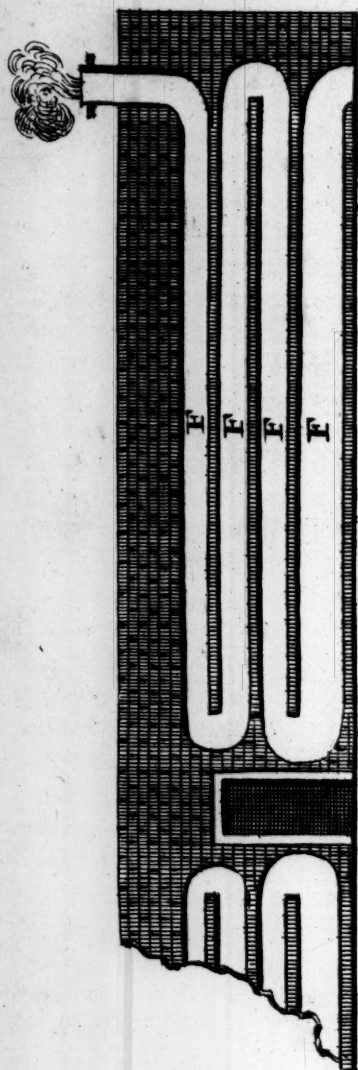
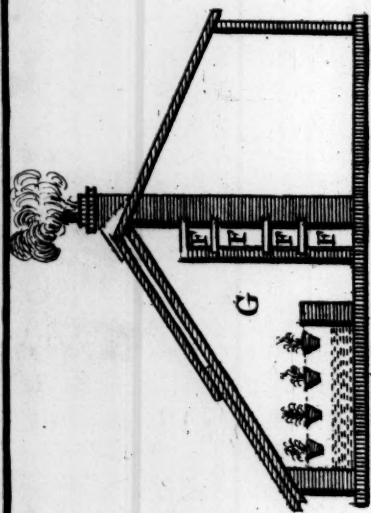
The Contrivance of the Furnace must be according to the Fuel which is design'd to burn: but as Turf is the best Firing for Stoves, where it can be had, because it burns more moderately, and lasts longer, than any other Sort of Fuel, and so requires less Attendance, I shall describe a proper Sort of Furnace for that Purpose.

The Whole of this Furnace should be erected within the House, which

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AA. The two Tan Beds.
 B. The Walk behind the Beds.
 C. The Flues.
 D. The Shed behind.

E. The Fire Places.
 F. The four Flues.
 G. The upright Section of the Stove.

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which will be a great Addition to the Heat ; and the Front Wall on the Outside of the Fire-place, next the Shed, should be three Bricks thick, the better to prevent the Heat from coming out that Way. The Door of the Furnace, at which the Fuel is put in, must be as small as conveniently may be to admit of the Fuel ; and this Door should be plac'd near the Upper-part of the Furnace, and made to shut as close as possible ; so that there may but little of the Heat pass off thro' it. This Furnace should be about twenty Inches deep, and sixteen Inches square at Bottom ; but may be slop'd off on every Side, so as to be two Feet square at the Top ; and under this Furnace should be a Place for Ashes to fall into, which should be about a Foot deep, and as wide as the Bottom of the Furnace : this should also have an iron Door to shut as close as possible ; but just over the Ash-hole, above the Bars which support the Fuel, should be a square Hole about four Inches wide, to let in Air to make the Fire burn : this must also have an iron Frame, and a Door to shut close when the Fire is perfectly lighted, which will make the Fuel last the longer, and the Heat will be more moderate.

The Top of this Furnace should be nearly equal to the Top of the Bark-bed, that the lowest Flue may be above the Fire ; so that there may be a greater Draught for the Smoke ; and the Furnace should be arched over with Bricks : but you should be very careful, where-ever the Fire is plac'd, that it be not too near the Bark-bed ; for the Heat of the Fire will, by its long Continuance, dry the Bark, so that it will lose its Virtue, and be in Danger of taking Fire ; to prevent which, it will be the best Method to continue an Hol-

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low between the Brick-work of the Fire and that of the Pit, about eight Inches wide ; which will effectually prevent any Damage arising from the Heat of the Fire ; and there should be no Wood-work plac'd any where near the Flues, or the Fire-place, because the continual Heat of the Stove may in time dry it so much, as to make it take Fire ; which ought to be very carefully guarded against.

The Entrance into this Stove should be either from a Green-house, the Dry Stove, or else thro' the Shed where the Fire is made, because in cold Weather the Front-glasses must not be open'd. The Inside of the House should be clean white-washed : because the whiter the Back-part of the House is, the better it will reflect the Light ; which is of great Consequence to Plants, especially in Winter, when the Stove is obliged to be shut up close.

Over the top Sliding-glasses there should be either wooden Shutters, or Tarpawlins fix'd in Frames, to cover them in bad Weather, to prevent the Wet from getting thro' the Glasses, and to secure them from being broken by Storms and Hail ; and these outer Coverings will be very serviceable to keep out the Frost ; and if in very severe Cold there is a Tarpawlin hung before the upright Glasses in the Front, it will be of great Service to the Stove ; and a much less Fire will preserve an Heat in the House.

In the warmest of these Houses or Divisions should be placed the most tender Exotic Trees and Plants ; which are Natives of very warm Countries : these should be plunged in the Bark-bed for the Reasons already assign'd ; and upon the Top of the Flues may be set the Melon-thistle, the tender Sorts of Cereus's, and Euphorbiuins, with other very

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tender succulent Plants, which require to be kept dry in Winter.

As in this Stove are plac'd the Plants of the hottest Parts of the *East* and *West-Indies*, so the Heat should be kept up equal to that mark'd *Anana* upon the Botanical Thermometers, and should never be suffered to be above eight or ten Degrees cooler at most; nor should the Spirit be rais'd above ten Degrees higher in the Thermometer during the Winter-season; both which Extremes will be equally injurious to the Plants.

But in order to judge more exactly of the Temper of the Air in the Stove, the Thermometer should be hung up at a good Distance from the Fire; nor should the Tube be expos'd to the Sun; but on the contrary, the Back hung thereto; because whenever the Sun shines upon the Ball of the Thermometer but one single Hour, it will raise the Liquor in the Tube considerably, when, perhaps, the Air of the House is not near so warm; which deceives those who are not aware of this.

In the Management of the Plants placed in the Bark-bed, there must be a particular Regard had to the Temper of the Bark, and the Air of the House, that neither be too violent; as also to water them frequently; because when they are in a continual Warmth, which will cause them to perspire freely, if they have not a constant Supply to answer their Discharge, their Leaves will decay, and soon fall off. As to the farther Directions concerning the Culture of the particular Plants, the Reader is desired to turn to their several Articles, where they are distinctly treated of.

The other Sort of Stove, which is commonly call'd the Dry Stove, as

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was before said, may be either built with upright and sloping Glasses at the Top, in the same manner, and after the same Model, as the Bark Stove; or else the Front-glasses, which should run from the Floor to the Cieling, maybe laid sloping, to an Angle of 45 Degrees, the better to admit the Rays of the Sun in Spring and Autumn: the latter Method has been chiefly follow'd by most Persons who have built these Sort of Stoves: but were I to have the Contrivance of a Stove of this Kind, I would have it built after the Model of the Bark Stove, with upright Glasses in Front, and sloping Glasses over them, because this will more easily admit the Sun at all the different Seasons; for in Summer, when the Sun is high, the top Glasses will admit the Rays to shine almost all over the House; and in Winter, when the Sun is low, the front Glasses will admit its Rays; whereas when the Glasses are laid to any Declivity in one Direction, the Rays of the Sun will not fall directly thereon above a Fortnight in Autumn, and about the same time in Spring; and during the other Parts of the Year they will fall obliquely thereon; and in Summer, when the Sun is high, the Rays will not reach above five or six Feet from the Glasses: besides, the Plants which are plac'd toward the Back-part of the House will not thrive in the Summer-season for want of Air; whereas when there are sloping Glasses at the Top, which run within four Feet of the Back of the House; these, by being drawn down in hot Weather, will let in perpendicular Air to all the Plants; and of how much Service this is to all Sorts of Plants, every one who has had Opportunity of observing the Growth of Plants

Plants in a Stove will easily judge : for when Plants are plac'd under Cover of a Cieling, they always turn themselves toward the Air and Light, and thereby grow crooked ; and if, in order to preserve them strait, they are turn'd every Week, they will nevertheless grow weak, and look pale and sickly, like a Person shut up in a Dungeon ; for which Reasons, I am sure, whoever has made Trial of both Sorts of Stoves, will readily join with me to recommend the Model of the Bark Stove for every Purpose.

As to the farther Contrivance of this Stove, it will be necessary to observe the Situation of the Place, whether the Ground be dry or wet ; if it be dry, then the Floor need not be rais'd above one Foot above the Level of the Ground ; but if it be wet, it will be proper to raise it three Feet ; especially if these Flues are to be carried under the Floor ; for when they are erected close upon the Surface of the Ground, they will raise a Damp ; nor will the Flues draw so well as when they are more elevated. The Furnace of this Stove may be either placed at one End of the House, or at the Back-part thereof, according to the Convenience of the Building. This must be made according to the Fuel intended to burn ; which, if for Coals or Wood, may be made according to the common Method for Coppers, but only much larger ; because, as the Fire is to be continued in the Night chiefly, so, if there is not room to contain a great Quantity of Fuel, it will occasion a great deal of Trouble in attending to the Fire in the Night, which should be avoided as much as possible ; because whenever the Trouble is made very great or difficult, and the Person who is entrusted with the Care of it, has

not a very great Affection for the Thing, and is withal not very careful, there will be great Hazard of the Fire being neglected, which in a little time would be of dangerous Consequence to the Plants : but if the Fuel intended be Turf, then the Contrivance of the Furnace may be the same as for the Bark Stove already mention'd. The Flues of this Stove should be turn'd in Angles, after the following Manner ;



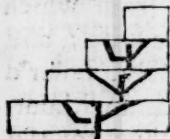
which will cause them to draw better than if strait ; and by this Method of disposing them, they will reach from the Back to the Front of the House.

The Depth of them should not be less than eighteen Inches, and the Width nearly equal, which will prevent their being choak'd up with Soot ; as is often the Case when the Flues are made too small. The Spaces between the Flues should be fill'd up either with dry Brick Rubbish, Lime, or Sand, from which there will little Moisture arise ; and the Flues should be closely plaster'd with Loam both within and without ; and the Upper-part of them cover'd with a coarse Cloth under the Floor, to prevent the Smoke from getting into the House.

When the Flue is carried from the Furnace to the End of the House, it may be return'd in the Back above the Floor in a strait Line, which may be contriv'd to appear like a Step or two ; by which means the Smoke will be continu'd in the House until all its Heat is spent, which will consequently warm the Air of the House the better ; and the Chimneys thro' which the Smoke is to pass off, may be either

at both Ends, or in the Middle, carry'd up in the Thickness of the Brick-work of the Back-Wall, so as not to appear in Sight in the House: the Flues should be first cover'd either with iron Plates, or broad Tiles, and then a Bed of Sand over them about two Inches thick; upon which the plain Tiles should be laid to correspond with the rest of the Floor. This Thickness of Cover will be full enough to prevent the too sudden Rise of the Heat from the Flues.

But if the Furnace is plac'd under the Floor, the Thickness of Sand between the iron Plate which covers it and the Floor, should not be less than four Inches; so that the Bottom of the Furnace should be sunk the lower: and if from the Fireplace to the End of the House, the Flues are laid a little rising, it will cause them to draw the better; but this Rise must be allow'd in the placing them lower under the Floor next the Fire, because the Floor must be laid perfectly level, otherwise it will appear unsightly.



In this Stove there should be a Stand or Scaffold erected for placing Shelves above each other, in the manner annex'd, that the Plants may be disposed above each other; so as to make an handsome Appearance in the House; but these Shelves should be made moveable, so as to be rais'd or sunk, according to the various Heights of the Plants; otherwise it will be very troublesome to raise or sink every particular Plant, according to their Heights, or every Year as they advance.

In placing the Feet of this Stand, you must be careful not to set them too near the Fire, nor directly upon

the Top of the Flue, especially at that End next the Fire, lest by the constant Heat of the Tiles the Wood should take Fire, which can't be too much guarded against; since such an Accident would go near to destroy all the Plants, if the House escaped being burnt. This Stand or Scaffold should be plac'd in the Middle of the House, leaving a Passage about two Feet and an half in the Front, and another of the same Width in the Back, for the more conveniently passing round the Plants to water them; and that the Air may freely circulate about them. In disposing the Plants, the tallest should be placed backward, and the smallest in Front; so that there will not be Occasion for more than five or six Shelves in Height at most: but the Scaffold should be so contriv'd, that there may be two or three Shelves in Breadth laid upon every Rise whenever there may be Occasion for it, which will save a deal of Trouble in disposing of the Plants.

In the Erection of these Stoves, it will be of great Service to join them all together, with only glass Partitions between them, as was before observ'd; and where several of these Stoves and Green-houses are required in one Garden, then it will be very proper to have the Green-house in the Middle, and the Stoves at each End, either in the manner directed in the Plan of the Green-house exhibited in that Article, or carry'd on in one strait Front.

By this Contrivance in the Structure of these Houses, a Person may pass from one to the other of them, without going into the open Air; which, besides the Pleasure to the Owner, is also of great Use, because there will be no occasion of making a Back-way into each of them, which otherwise

otherwise must be, since the Front-glasses of the Stove should not be open'd in cold Weather, if it can possibly be avoided on any Account; otherwise the cold Air rushing in, will greatly prejudice the very tender Plants.

But besides the Stoves here describ'd, and the Green-house, it will be very necessary to have a Glass-case or two, where-ever there are great Collections of Plants. These may be built exactly in the manner already described for the Stoves, with upright Glasses in Front, and sloping Glasses over the Top of them, which should run within four Feet of the Back of the House. The Height, Depth, and other Dimensions, should be conformable to that of the Stoves, which will make a Regularity in the Building. These may be plac'd at the End of the Range on each Hand beyond the Stoves; and if there be a Flue carried round each of these, with an Oven to make a Fire in very cold Weather, it will save a great deal of Labour, and prevent the Frost from ever entering the House, be the Winter ever so severe: but the upper Glasses of these Houses should have either Shutters to cover them, or else Tarpawlins to let down over them in frosty Weather; and if there is a Contrivance to cover the upright Glasses in Frost, either with Mats, Shutters, or Tarpawlins, it will be of great Use in Winter, otherwise the Flue must be used when the Frost comes on; which should not be done, but upon extraordinary Occasions; because the Design of these Houses is, to keep such Plants as require only to be preserved from Frost, and need no additional Warmth; but, at the same time, require more Air than can conveniently be given them in a Green-house: in one of

these Houses may be plac'd all the Sorts of Ficoides, *African Sedums*, Cotyledons, and other succulent Plants from the *Cape of Good Hope*. In the other may be plac'd the several Kinds of *Anemonospermus's*, *Jacobæas*, *Dorias*, *Alaternoides's*, and other woody or herbaceous Plants from the same Country, or any other in the same Latitude.

Thus by contriving the Green-house in the Middle, and one Stove and a Glass-case at each End, there will be Conveniency to keep Plants from all the different Parts of the World, which can be no otherwise maintain'd but by placing them in different Degrees of Heat, according to the Places of their native Growth.

The Stoves before described are such as are usually built to maintain Exotic Plants, which will not live in *England*, unless they enjoy a Temperature of Air approaching to that of the several Countries from whence they are brought; therefore whoever is inclinable to preserve a large Collection of Plants from different Countries, must contrive to have two or three of these Stoves; each of which should be kept in a different Temperature of Warmth; and the Plants should be also adapted to the several Degrees of Heat, as they shall require, to preserve them: but as the far greatest Number of Stoves, which have been erected in *England*, are design'd for the Culture of the *Ananas* only; so I shall add a Description and Plans of two Sorts of Stoves, of the least Expence in Building for this Purpose; so that whoever are inclinable to erect a Stove for ripening of the *Ananas*, may, by attending to the Plans and Descriptions, direct the building and contriving such Stoves as they are desirous to have; or according to the Number
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of Fruit proposed to ripen annually.

The first Sort of Stove is that which is design'd for the Plants which produce the Fruit the same Year; for as the Plants do not generally fruit until the second Year from their being taken from the old Plants, whether they are Suckers from the Side of the Plants, or Crowns taken from the Fruit; if they fruit the succeeding Year, the Fruit will be small; therefore when they are properly managed, they will not produce their Fruit until the second Year; by which time they will have obtained Strength to produce large Fruit, in which their greatest Value consists: for altho' there are several Varieties of this Fruit, which differ in Degrees of Goodness, as in most other Fruits; yet they may all of them be improved in the Size, without diminishing of their Excellence in Taste; tho' I know there are some Persons of a contrary Opinion, and who believe, that the small Fruit are always better flavour'd than the large; but from long Experience I can assert, that the larger and better nourish'd this Fruit is, the higher will be its Flavour, supposing the Sorts are the same; therefore every Person who cultivates this Fruit, should endeavour to have it improved to the greatest Perfection; in order to which, it will be proper to have a small Stove, in which the young Plants may be placed to bring them forward for fruiting; and afterward they should be removed into the larger Stove for ripening: but I shall return to the Description of the larger Stove. The Length of this must be proportionable to the Quantity of Fruit desired in one Season; for, as to their Width, that should not be much varied; the Tan-bed should never be narrower than six, nor should it be more than seven,

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Feet wide; and if there is room enough on each Side of the Bed for a Walk a Foot, or at most a Foot and an half, broad, it will be sufficient for Persons to water and do every thing which is necessary to the Plants: and as these Places are not design'd for walking in, it is to no Purpose to have broad Walks, which will take up too much Space; and the Fires must be larger, in proportion to the Space of the House; otherwise the Air cannot be kept in a proper Temperature of Warmth. If the Stove is made thirty-six Feet long in the Clear, then the Tan-bed may be thirty-three Feet long, and a Walk left at each End a Foot and an half wide; which will be sufficient to walk round the Bed to water and attend the Plants; and such a Tan-bed will contain an hundred Fruiting-plants very well, if the Bed is seven Feet wide; and this Stove may be very well warmed with one Fire; but if the Stove is built much larger, there must be two Fire-places contriv'd, one at each End; otherwise the Air of the House cannot be kept in a proper Temperature of Heat. The Quantity of Fuel which will be wanting for a Stove of thirty-six Feet long in the Clear, is about three Chaldron and an half of Coals, or in such proportion for any other Sort of Fuel, where Coals can be had reasonably: it is the best Kind of Fuel; and the Pit or Scotch Coal is preferable to the Newcastle Coal, because the latter is very subject to melt, or run into Clinkers, when the Oven is very hot; which the Pit-coal never does, but always burn's away with a white Ash, making but little Soot: so that the Flues will not require to be so often cleaned, as when the other Coal is used. The next best Fuel for Stoves is Peat, where it can

can be procured good. There are some Persons who burn Wood in their Stoves; but this Fuel requires much greater Attendance than any other; therefore is not very proper for this Purpose: but in the building of the Stoves, the Ovens must be contrived for the Sort of Fuel which is to be used in them: but these will be afterward described; and the Places where they should be situated are delineated in the Plan.

The Stoves design'd for ripening the Fruit of the *Ananas* should have upright Glasses in their Front, which should be high enough to admit a Person to walk upright under them on the Walk in the Front of the House; or where this cannot be admitted, the front Walk may be sunk one Foot lower than that on the Back of the Tan-bed; so that the Surface of the Bed will be a Foot above the Walk, which will be rather an Advantage, as the Plants will be so much nearer the Glass; and a Person may with great Ease water and attend the Plants, when they are thus raised above the Walk; therefore when a Stove is so situated, as that the raising of it high above-ground, might be attended with Inconvenience, the Walks quite round the Tan-bed may be sunk a Foot or eighteen Inches below the Top of the Bed; which will admit of the Stove being built so much lower; for if there is Height for a Person to walk under the Glasses, it will be as much as is required: but as the Flues, when returned four times against the Back-wall, will rise near seven Feet; so the Bottom of the lower Flue should be on the same Level with the Walk, to admit of room enough for the Whole under the Roof. Over the upright Glasses there must be a Range of sloping Glasses, which must run to join the

Roof; which should come so far from the Back-wall, as to cover the Flues, and the Walk behind the Tan-pit; for if the sloping Glasses are of Length sufficient to reach nearly over the Bed, the Plants will require no more Light; therefore these Glasses should not be longer than is absolutely necessary, which will render them more manageable than when they are longer: but the annexed Plan will render this more intelligible than any written Description can do.

The other Sort of Stove, which is design'd for raising of young Plants, until they are of a proper Size to produce Fruit, need not be built so high as the former; therefore there will not be wanting any upright Glasses in the Front; but the Frames may be made in one Slope, as in the annexed Plan: indeed, of late Years, many Persons have made Tan-beds, with two Flues running thro' the Back-wall, to warm the Air in Winter: and these Beds have been covered with Glasses, made in the same manner as those for common Hot-beds, but larger: these were contrived to save Expence, and have in many Places answered the Intention; but to these there are several Objections: 1. That of having no Passage into them; so that the Glasses must be taken off, when the Plants want Water, &c. 2. The Damps very often rise in the Winter-season, when the Glasses are closely shut, which often proves very injurious to the Plants: 3. There is Danger of the Tan taking Fire, where there is not great Care taken that it doth not lie near the Flues; so that altho' the small Stoves here proposed require more Expence in their Building; yet being greatly preferable to those Pits, and the after Expence being the same, they will be found

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so much more convenient, as to render them more general where this Fruit is cultivated.

Where there is no Danger of the Wet settling about the Tan in Winter, the Bark-pit may be sunk two Feet deep in the Ground, and raised one Foot above the Surface: the only Walk which is necessary in these Stoves, is that on the Back of the Tan-bed, which may be on the Level with the Surface of the Ground; so that the Tan-bed will be raised one Foot higher; and the Flues beginning from the Walk, there will be room to return them three times; which will warm the Air much more with the same Fire, than when they are carried but twice the Length of the Stove.

But in wet Land the Tan-bed should be wholly raised above the Level of the Ground, in order to preserve the Tan from being chill'd by Moisture; and in such Places the Walk on the Back should be raised near two Feet above the Level of the Ground; because the Tan-bed should not rise much more than one Foot above the Walk; for if it is higher, it will be more difficult to reach the Plants when they require Water: the Brick-wall of the Pit, on the Side next the Walk, need not be more than four Inches thick, so far as rises above the Walk; but below that, it should be nine Inches thick: the Reason for reducing the Wall above, is to gain room for the Walk, which would otherwise be too much contracted; and if there is a Kirb of Oak laid on the Top of the four-inch Wall, it will secure the Bricks from being displaced, and sufficiently strengthen the Wall; which, being but one Foot above the Walk, will not be in any Danger of falling; and on this Kirb there may be two or three upright iron

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Bars fix'd with Claws, to support the Crown-piece of Timber, which will secure it from hanging in the Middle, which, in a great Length, is very often the Case, where there are no Supports placed under it: there may be more or less of these Bars, according to the Length of the Stove; but if they are at about ten Feet asunder, it will be near enough: if these iron Bars are one Inch square, they will be strong enough to answer the Design.

But as it is hoped, that the annexed Plan of this small Stove will convey a clear Idea of the whole Contrivance; this will render it unnecessary to add any farther Description here.

STRAMONIUM, Thorn-apple.

The Characters are;

The Flower consists of one Leaf, shap'd like a Funnel, and cut into several Segments: out of the Flower-cup rises the Pointal, which, when the Flower decays, becomes a roundish Fruit, arm'd, for the most part, with sharp Thorns, and divided into four Cells form'd by a Partition, dispos'd in the Figure of a Cross, furnish'd with four Placenta's, or nutritive Membranes, to which several kidney-shap'd Seeds adhere.

The Species are;

1. STRAMONIUM *fructu spinoso rotundo, flore albo simplici.* Tourn. Thorn-apple with a round prickly Fruit, and a single white Flower.

2. STRAMONIUM *fructu spinoso oblongo, caule & flore violaceo.* Boerb. Ind. Thorn-apple with a longish prickly Fruit, and violet-colour'd Stalks and Flowers.

3. STRAMONIUM *ferox.* Boccon. Thorn apple with very long sharp Prickles.

4. STRAMONIUM *Americanum minus, alkekengi folio.* Tourn. Lesser American

American Thorn-apple, with a Winter-cherry-leaf.

5. STRAMONIUM *Malabaricum*, *fructu glabro, flore simplici violaceo*. Tourn. Malabar Thorn-apple, with a smooth Fruit, and a single violet-colour'd Flower.

6. STRAMONIUM *fructu spinoso rotundo, flore violaceo duplici vel triplici*. Tourn. Thorn-apple with a round prickly Fruit, and violet-colour'd Flowers, which are two or three times double.

7. STRAMONIUM *fructu spinoso rotundo, flore albo pleno*. Inst. R. H. Thorn-apple with a round prickly Fruit, and a double white Flower.

8. STRAMONIUM *Malabaricum*, *fructu glabro, flore simplici albo*. Malabar Thorn-apple, with a smooth Fruit, and a single white Flower.

The first Sort is us'd to make a cooling Ointment, which is greatly esteem'd by many Persons. This, though not a Native of this Country, yet is now become so common upon Dunghils, and other rich Grounds, as not to be easily eradicated. The Seeds falling, continue all the Winter in the Ground; and in the Spring, the Plants will come up, and, if suffer'd to stand, will spread over the whole Spot of Ground, and produce such Quantities of Seeds, as to leave a Stock to furnish the Ground for some Years.

The second Sort is not as yet quite so common as the former, tho' it is equally as hardy; and where the Seeds are permitted to fall, the Plants will come up in great Plenty the following Summer. This Sort will grow much larger than the former. I have measur'd one of these Plants, which grew upon a rich Soil, upward of six Feet high, and divided into many strong Branches, which spread almost eight Feet Dia-

meter; so that it is unfit to stand in small Pleasure gardens, and fit only to have a Place in some outward Part of the Garden or Yard; because it takes up too much room.

The third Sort is somewhat like the former in the Appearance of the Plant; but the Fruit is larger, and beset with very long sharp Thorns; for which Variety, it is preserv'd in the Gardens of those who are curious in Botany.

This Sort is not quite so hardy as the two former; so must be sown on a moderate Hot-bed in the Spring; and when the Plants are come up, they should be transplanted on a new Hot-bed to bring the Plants forward; but you must be careful not to draw them too much by keeping the Glasses close; which will render them very weak, and unfit to stand abroad: therefore after they have taken Root, they should have plenty of fresh Air when the Weather is warm; and in May they should be enur'd to the open Air by degrees, into which they may be transplanted in June; observing to raise the Plants with a large Ball of Earth, and plant them in a rich Soil, giving them Water until they have taken Root. In July these Plants will flower, and their Seeds will ripen in August.

The fourth Sort will grow larger than the last-mention'd. This is preserv'd more for the sake of its long tubulous white Flowers, than any other Beauty in the Plant. It is somewhat tender, and should be sown on an Hot-bed in the Spring, and managed as the former; otherwise, if the Season proves cold, the Seeds will not ripen; tho' I have sometimes had Plants of this Kind, which came up from Seeds that scatter'd in Autumn, and ripen'd their Seeds very well; so that I believe,

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in a few Years, it may be enur'd to this Climate, and thrive with little Care.

The fifth and sixth Sorts produce very beautiful Flowers, which afford an agreeable Scent at some Distance; but if smelt to very close, it is offensive to the Head. The Flowers of these Kinds are violet-colour'd on the Outside, but are white on the Inside; and those of the sixth Sort have two or three Flowers within each other, in the manner of the Primrose, which is call'd *Hose in Hose*. These two Sorts are much more tender than either of the former, and must be sown early in the Spring on an Hot-bed; and when the Plants are come up, they must be transplanted into a fresh Hot-bed to bring them forward; and as the Heat of this Bed declines, there should be a fresh one prepar'd; in which should be plung'd Pots fill'd with light rich Earth, into which the Plants should be plac'd; observing to water and shade them until they have taken Root: after which they should have Air given to them, in proportion to the Heat of the Season; and must be often water'd, being very thirsty Plants.

Thus they must be push'd on by Heat, in the manner directed for Amaranths; to which the Reader is desir'd to turn for their farther Culture. In July, if the Season be warm, they may be remov'd into the open Air, placing them in a warm Situation, where they will produce their Flowers plentifully; and if the Autumn be warm, their Seeds will ripen very well: but it will be a sure Method to preserve one Plant of each Kind under Glasses, lest those in the open Air should not perfect their Seeds.

The seventh Sort has been, by several Writers on Botany, suppos'd

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to be only a Variety of the first; but whoever will consider the whole Habit of the Plant, will find a specific Difference in the Leaves and Flowers of these two Sorts.

The eighth Sort is a Native of *Malabar*, as also of several of the Eastern Countries. The Fruit of this Kind has no Thorns; but many Protuberances over the Surface. The Flowers are small, and of a whitish-yellow Colour. The Seeds of this Sort are what the *Persians*, and other Inhabitants where this Plant grows in plenty, make use of to intoxicate Persons on whom they have Designs; and it is there call'd *Dutro*.

These two Sorts are very tender; so require to be sown upon an Hot-bed early in the Spring; and the Plants must afterward be treated in the same manner as hath been directed for the sixth Sort: with which Management these may be brought to perfect their Seeds; which they never will do, if the Plants are expos'd to the open Air.

STRATIOTES, Water-soldier.

The Characters are;

It hath a compressed Spatha composed of two Leaves, which is permanent: the Empalement of the Flower is of one Leaf, and is slightly cut into three Segments: the Flower has three heart-shap'd Petals, which spread open: in the Centre of the Flower is plac'd the Ovarium, supporting six Styles, attended by many Stamina: the Ovary afterward becomes a Capsule, opening in six Parts, in which are inclos'd many oblong flat Seeds.

We know but one Species of this Genus; viz.

STRATIOTES. *Lin. Flor.* Water-soldier; or, by some, Water-aloe, or Fresh water-soldier.

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This Plant is in Shape like the Aloe; but the Leaves are thinner, and serrated on the Edges. It grows plentifully in Standing-waters in the *Isle of Ely*, and many Places in the North of *England*; from whence young Plants may be procur'd in the Spring, when they first rise on the Surface of the Water; and these, being plac'd in large Ponds or Canals, will strike down their Roots, and propagate without any farther Care. In the Autumn the Plants sink down to the Bottom of the Water, and rise again in the Spring: about *Midsummer* they flower, and perfect their Seeds in *August*; which, falling into the Water, will take Root, and produce Plants the following Year.

STRAWBERRY. *Vide Fragaria.*

STRAWBERRY-TREE. *Vide Arbutus.*

STYRAX, The Storax-tree.

The Characters are;

The Flower consists of one Leaf, shap'd like a Funnel, and cut into several Segments; out of whose Flower-cup rises the Pointal, which is fix'd like a Nail in the Fore-part of the Flower: this afterward becomes a roundish fleshy Fruit, including one or two Seeds in hard Shells.

We have but one Species of this Plant; viz.

STYRAX *folio mali cotonei.* C.B.P. Storax-tree with a Quince-tree-leaf.

This Plant grows plentifully in the Neighbourhood of *Rome*, and also in *Palestine*, and several of the Islands in the *Archipelago*, from whence the Fruit has been brought to *England*; where there have been many Plants raised of late Years, in some curious Gardens.

It may be propagated by sowing the Seeds in Pots fill'd with fresh light Earth, and plung'd into a mo-

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derate Hot-bed. This should be done as soon as possible, when the Seeds are procur'd; for if they are sown the Latter-end of Summer, and the Pots kept in a moderate Hot-bed of Tanners Bark all the Winter, the Plants will come up the succeeding Spring; whereas those sown in the Spring often remain in the Ground a whole Year before the Plants come up.

When the Plants are up, they should each be transplanted into a separate small Pot fill'd with fresh light Earth, and plung'd into a moderate Hot-bed; observing to water and shade them until they have taken Root: after which they should be enur'd to the open Air by degrees, into which they must be remov'd in *June*, placing them in a warm Situation; in which Place they may remain till the Beginning of *October*; at which time they should be remov'd into the Green-house, placing them where they may enjoy the Benefit of fresh Air when the Weather is mild: these Plants are tolerably hardy, and only require to be shelter'd from severe Frost; for in *Italy* they grow extremely well in the open Air, and produce Fruit in great Plenty. These Plants must be placed in a Green-house in Winter; for they are not hardy enough to live in the open Air in *England*. They cast their Leaves in Autumn; so that in the Winter, when the Plants are not in a growing State, they should have but little Water given to them: but as these Plants put out their Leaves pretty early in the Spring, they must then have a great Share of Air, otherwise they will draw up very weak.

The Refin of this Tree is brought over for medicinal Use.

SUBER, The Cork-tree.

The Characters are;

It is in all respects like the Ilex, except

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except in the Bark of the Tree, which in this is thick, spongy, and soft.

The Species are;

1. *SUBER latifolium perpetuo vi-rens*. C. B. P. The broad-leav'd ever-green Cork-tree.

2. *SUBER angustifolium non serratum*. C. B. P. The narrow-leav'd Cork-tree, with smooth Edges.

There are several other Varieties of this Tree mentioned in some of the Italian Catalogues of Plants; but the two Sorts here mention'd are all I have observ'd in the English Gardens.

These Trees may be propagated by sowing their Acorns in the Spring, in the manner directed for the Ilex; to which these exactly agree, both in their Characters and Culture: therefore, to avoid Repetition, the Reader is desir'd to turn to that Article for farther Instruction.

SUCCORY. *Vide* Cichorium.

SUMACH. *Vide* Rhus.

SURIANA.

The Characters are;

It hath a rose-shap'd Flower compos'd of several Petals, which are plac'd orbicularly, from whose Empalement arises the Pointal, which afterward becomes the Fruit; which generally consists of four Capsules, in which are included four roundish Seeds.

We know but of one Species of this Plant; viz.

SURIANA foliis portulacæ angustis. Plum. Nov. Gen. Suriana with narrow Purslain-leaves.

This Plant was so named by Father Plumier, who discover'd it in the French Settlements in America, in Honour to Dr. Joseph Surian of Marseilles, who was a very curious Botanist.

The Seeds of this Plant were brought from the Havanna by the late Dr. William Houfoun, who found

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the Plants growing there in Plenty on the Shore, in moist Places, where the salt Water usually flows. It also grows plentifully in some Parts of the Island of Jamaica.

It is propagated by Seeds, which must be sown on an Hot-bed early in the Spring; and when the Plants are come up, they must be carefully cleaned from Weeds, and frequently refreshed with Water. In warm Weather the Glasses of the Hot-bed should be rais'd every Day, to admit fresh Air to the Plants, to prevent their drawing up too weak. When the Plants are fit to remove, they should be taken up carefully, and each planted in a separate small Pot filled with fresh light Earth, and plunged into an Hot-bed of Tanners Bark, observing to shade them until they have taken new Root; after which time they must be duly water'd every Evening in hot Weather; and they must have fresh Air admitted to them every Day, in proportion to the Warmth of the Season. In this Hot-bed the Plants may remain till the Autumn, when the Nights begin to be cold; at which time they should be remov'd into the Stove, and plung'd into the Bark-bed. During the Winter-season these Plants must be kept warm, especially while they are young, otherwise they will not live through the Winter in this Country. They must also be frequently refresh'd with Water; but it must not be given to them in large Quantities in cold Weather; for too much Moisture in Winter will soon destroy them. These Plants make but slow Progress the first Year; afterward they will grow pretty freely, if they are not stinted. In Winter they must constantly be kept in the Stove in this Country, and if they are plung'd into the Bark-bed, they will make the greater Pro-

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Progreſs. In Summer they muſt have a large Share of Air, by opening the Glaſſes of the Stoves; and if their Leaves are cover'd with Filth (which the Plants in Stoves often contract), they ſhould be carefully waſhed with a Sponge; otherwiſe the Plants will not only appear unſightly, but it will retard their Growth.

Theſe Plants uſually grow about ſeven or eight Feet high; and as they retain their Leaves throughout the Year, they afford an agreeable Variety amongſt other Plants in the Stove.

SYCAMORE. *Vide Acer majus.*

SYMPHYTUM, Comfrey.

The Characters are;

The Flower conſiſts of one Leaf, ſhap'd like a Funnel, having an oblong Tube, but ſhap'd at the Top like a Pitcher: out of the Flower-cup (which is deeply cut into five long narrow Segments) riſes the Pointal, attended with four Embryoes, which afterward become ſo many Seeds, in form ſomewhat like the Head of a Viper, and ripen in the Flower-cup.

The Species are;

1. **SYMPHYTUM** *conſolida major ſæmina, flore albo, vel pallide luteo.* C. B. P. The greater female Comfrey, with a white or pale-yellow Flower.

2. **SYMPHYTUM** *conſolida major mas, flore purpureo.* C. B. P. The greater male Comfrey, with a purple Flower.

3. **SYMPHYTUM** *majus, tuberoſa radice.* C. B. P. Greater Comfrey, with a tuberoſe Root.

4. **SYMPHYTUM** *minus, tuberoſa radice.* C. B. P. Smaller Comfrey, with a tuberoſe Root.

5. **SYMPHYTUM** *echii folio ampliore, radice rubra, flore luteo.* Inſt. R. H. Comfrey with a broad Vipers-bu-

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gloſs-leaf, a red Root, and a yellow Flower.

6. **SYMPHYTUM** *echii folio ampliore, radice rubra, flore exalbido.* Inſt. R. H. Comfrey with a broad Vipers-bugloſs-leaf, a red Root, and a whiteiſh Flower.

7. **SYMPHYTUM** *echii folio anguſtiore, radice rubra, flore luteo.* Inſt. R. H. Comfrey with a narrow Vipers-bugloſs-leaf, a red Root, and a yellow Flower.

8. **SYMPHYTUM** *Creticum, echii folio anguſtiore, longiſſimis villis horrido, flore croceo.* Tourn. Cor. Candy Comfrey, with a narrow Vipers-bugloſs-leaf, cover'd with very long Hairs, and a ſaffron-colour'd Flower.

9. **SYMPHYTUM** *Orientale, echii folio ampliore, longiſſimis villis horrido, flore croceo.* Tourn. Cor. Eaſtern Comfrey, with a broad Vipers-bugloſs-leaf, cover'd with long Hairs, and a ſaffron-colour'd Flower.

10. **SYMPHYTUM** *Orientale, echii folio, flore albo tenuiſſimo.* Tourn. Cor. Eaſtern Comfrey, with a Vipers-bugloſs-leaf, and a very narrow white Flower.

11. **SYMPHYTUM** *Orientale, echii folio minore, flore nunc albo, nunc flavefcente.* Tourn. Cor. Eaſtern Comfrey, with a ſmaller Vipers-bugloſs-leaf, and a Flower ſometimes white, and at other times of a yellowiſh Colour.

12. **SYMPHYTUM** *Orientale, oleæ folio argenteo, flore flavefcente.* Tourn. Cor. Eaſtern Comfrey, with a ſilvery Olive-leaf, and a yellowiſh Flower.

13. **SYMPHYTUM** *Orientale anguſtifolium, flore cæruleo.* Tourn. Cor. Eaſtern Comfrey, with a narrow Leaf, and a blue Flower.

14. **SYMPHYTUM** *Conſtantinopolitanum, boraginis folio & facie, flore albo.*

albo. Tourn. Cor. Constantinople Comfrey, with a Leaf and Face of Borage, and a white Flower.

15. SYMPHYTUM *Oriente, folio subrotundo aspero, flore cæruleo. Tourn. Cor.* Eastern Comfrey, with a rough roundish Leaf, and a blue Flower.

16. SYMPHYTUM *Oriente, folio subrotundo aspero, flore cæruleo odoratissimo. Tourn. Cor.* Eastern Comfrey, with a rough roundish Leaf, and a very sweet blue Flower.

The first Sort grows wild upon the Sides of Banks and Rivers in divers Parts of England, where it is commonly gather'd to supply the Markets for medicinal Use. The second Sort is sometimes found wild in England; but is less common than the former. In Holland it is the only Sort I observ'd wild; where it grows on the Sides of the Canals almost every-where.

The third Sort I never yet observed growing wild; but it is preserv'd in many Gardens for Variety.

The fourth Sort here mentioned is pretty common in several English Gardens, where it is preserv'd for the sake of Variety. This increases pretty fast by its Roots; but is seldom propagated by Seeds. The fifth, sixth, and seventh Sorts grow wild in Spain and Portugal, from whence their Seeds may be obtain'd. These have red Roots, somewhat resembling those of the Alkanet; and are by some Botanists ranged amongst the Alkanets.

The other Sorts were discover'd by Dr. Tournefort in the Levant, from whence he sent their Seeds to the Royal Garden at Paris.

All these Plants may be cultivated, either by sowing their Seeds in the Spring, or by parting of their Roots: the latter Way, being the most expeditious, is chiefly practis'd, where

they are planted for Use. The best Season for parting their Roots is in Autumn; at which time almost every Piece of a Root will grow. They should be planted about eighteen Inches asunder, that they may have room to spread, and will require no farther Care but to keep them clear from Weeds; for they are extreme hardy, and will grow upon almost any Soil, or in any Situation.

SYRINGA, The Mock-orange, *vulgo.*

The Characters are;

The Flower, for the most part, consists of five Leaves, which are plac'd circularly, and expand in form of a Rose; from whose Flower-cup rises the Pointal, which afterward becomes a roundish Fruit adhering to the Flower-cup, divided into four Cells, which are full of small Seeds.

The Species are;

1. SYRINGA *alba, fructu Philadelphus Athenæi. C. B. P.* The common white Syringa, or Mock-orange.

2. SYRINGA *flore albo pleno. C. B. P.* The double white Syringa.

3. SYRINGA *flore albo simplici, foliis ex luteo variegatis.* The striped-leav'd Syringa.

Dr. Linnæus has chang'd the Title of this Genus to *Philadelphus*; and he has given this Title of Syringa to the Lilac; but as the old Titles of both Genera are more commonly known, I shall choose to continue them to the Plants they have been apply'd to by former Botanists.

The first Sort is that which is commonly cultivated in the English Gardens. The second seldom produces its Flowers, which are very double; and the Plants are of humble Growth.

The variegated Sort is preserv'd in the Gardens of such as are curious in striped Plants, though there is no great

great Beauty in it: because when the Plants are vigorous, the Stripes in the Leaves scarcely appear.

All these Plants may be easily propagated, by taking off their Suckers in Autumn (which they produce very plentifully), and planting them out in a Nursery at three Feet Distance Row from Row, and a Foot asunder in the Rows; observing to keep the Ground between them constantly clear from Weeds, as also to dig it up every Spring to loosen it, that the Roots of the Plant may more readily extend themselves. In this Nursery they may remain two Years, by which time they will be fit to transplant out where they are to remain; which may be into small Wilder-ness-quarters, or amongst flowering Shrubs in Clumps, observing to place them with other Sorts of Shrubs of the same Growth; for these seldom grow above six or seven Feet high in England, and the double Sort not more than three or four.

They are extreme hardy, so may be planted in almost any Soil or Situation; and will require no farther Culture but to take off the Suckers every Year, and cut out the dead Wood; as also to keep them clear from Weeds in Summer, and dig the Ground about their Roots every Winter, which will make them thrive and flower very plentifully. The Season of their flowering is in May, and in cool Seasons they continue in Beauty the first Part of June. Their Flowers have a Scent somewhat like those of the Orange-tree, from whence it had the Name of Mock-orange: but if these are plac'd in a close Room, or are smelt to too closely, they have a strong disagreeable Scent, and too powerful for the Ladies; but when they are in the open Air, the Scent is not so affecting.



TABERNÆMONTANA.

The Characters are;

It hath a tubulous Flower, consisting of one Leaf, which is spread open toward the Top, and divided into several Parts: from the Bottom of the Flower arises the Pointal, which afterward becomes the Fruit, composed of two Capsules which open lengthways; and are fill'd with oblong Seeds, surrounded with a thin Pulp.

The Species are;

1. TABERNÆMONTANA *lactescens, citrii foliis undulatis.* Plum. Nov. Gen. Milky Tabernæmontana, with a waved Citron-leaf.

2. TABERNÆMONTANA *lactescens, lauri folio, flore albo, siliquis rotundioribus.* Houst. Milky Tabernæmontana, with a Bay-leaf, a white Flower, and rounder Pods.

The first of these Sorts is common in the Island of *Jamaica*, and in several other Places in the warm Parts of *America*; where it rises to the Height of fifteen or sixteen Feet, having a smooth strait Trunk, covered with a whitish Bark; at the Top of the Trunk come out the Branches, which are irregular, and beset with shining-green Leaves; from the Foot stalks of these Leaves are produc'd the Flowers, which are yellow, and extremely sweet-scented: these Flowers are succeeded by two forked Pods, in which the Seeds are contained. This Genus of Plants is very near of kin to the Nerium or Oleander; and has been by some Botanical Writers ranged under that Head; but the Seeds of this Genus having no Down a hering to them, as have those of the Oleander, and being

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being included in a soft pulpy Substance, Father *Plumier* has constituted this Genus, in Honour to Dr. *James Theodore*, who was called *Tabernaemontanus*, from a little Village in *Germany*, where he was born. He was one of the most knowing Botanists of his Age, and published at *Francfort a Folio*, in a long Form, in the Year 1590. in which are the Figures of two thousand two hundred and fifty Plants.

The second Sort was discovered at *La Vera Cruz*, by the late Dr. *William Houstoun*, who sent the Seeds into *England*, from whence several of the Plants have been raised.

Both these Plants are very impatient of Cold; so will not live in this Country, unless they are placed in a warm Stove; they may be propagated by Seeds, which should be sown early in the Spring, on an Hot-bed; and when the Plants are come up, they must be carefully transplanted into small Pots filled with light rich Earth, and then plunged into an Hot-bed of Tanners Bark; being careful to shade them in the Heat of the Day, until they have taken new Root; after which time they must have free Air admitted to them every Day when the Weather is warm; but if the Nights should prove cold, the Glasses of the Hot-bed should be covered with Mats every Evening, soon after the Sun goes off from the Bed. These Plants must be often refreshed with Water; but it must not be given to them in large Quantities, especially while they are young: for as they are full of a milky Juice, they are very subject to rot with much Moisture.

The Plants may remain during the Summer-season in the Hot-bed, provided the Tan is stirred up to renew the Heat when it wants, and a

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little new Tan added; but at *Michaelmas*, when the Nights begin to be cold, the Plants should be remov'd, and plung'd into the Bark-bed in the Stove; where, during the Winter-season, they must be kept in a moderate Degree of Warmth; and in cold Weather they should have but little Water given them, lest it should rot them. As these Plants are too tender to live in the open Air in this Country, they should constantly remain in the Stove, where, in warm Weather, they may have free Air admitted to them, by opening the Glasses of the Stove; but in cold Weather they must be kept warm; with this Management the Plants will thrive, and produce their Flowers; and as they are always green, they will make a pleasant Diversity amongst other tender Exotic Plants in the Stove.

These Plants may also be propagated by Cuttings, during the Summer-season; which should be cut off from the old Plants, and laid to dry in the Stove five or six Days before they are planted, that the wounded Parts may heal, otherwise they will rot. These Cuttings should be planted in Pots fill'd with fresh light Earth, and plunged into the Hot-bed of Tanners Bark, observing to shade them from the Sun in the Middle of the Day in hot Weather, as also to refresh them now-and-then with a little Water. When the Cuttings have taken Root, they may be transplanted into separate Pots, and treated in the same manner as those which are raised from Seeds.

TACAMAHACA foliis crenatis, sadelhout seu lignum ad cippippia conficienda aptum. Par. Bat. prod. Pluk. Phyt. tab. 228. f. 2. The Tacamahaca.

This Tree grows spontaneously on the Continent of *America*, where
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the Inhabitants wound the Bodies of the Trees in the Spring, from whence there flows a Balsam, which is greatly esteemed by the Physicians of those Countries, and is placed amongst the List of Simples in the College Dispensary, though at present it is not much used in *England*.

Some of the Plants of this Sort were brought from *Canada* into *France* a few Years since, from whence they were procured by some curious Persons in the Island of *Jersey*, where it is propagated in the Gardens; and was sent to *England* by the Name of *Arbre de la Reine*, as a Present to the late Queen.

This Tree is hardy enough to resist the Cold of our Winters in the open Air; and if it is planted in a shelter'd Situation, will not be in any Danger of suffering from the severest Cold of this Country, especially when the Plants have obtained Strength; so it is very proper to plant amongst hardy Exotic Trees and Shrubs in Wilderness-quarters, where they will add to the Variety. The Shoots of this Tree are very like those of the black Poplar, as are also the Leaves; and the Buds, in the Spring, before the Leaves come out, are cover'd with a dark glutinous Balsam, which smells very strong when touched, and adheres to the Fingers. The Leaves of this Tree fall off at *Michaelmas*, and new Leaves come out the Latter-end of *February*, or the Beginning of *March*; for it is one of the earliest Trees in coming out in the Spring.

There are some of the Plants now in the Physic-garden at *Chelsea*, which have produced their Male Flowers (or Katkins), which are very like those of the Walnut-tree, or of some of the Poplars; so that, it is probable, this may be of the latter Genus: but as we have no Ac-

count of the Fruit, nor hath any of the Trees in the *English* Gardens, as yet, attempted to produce any, we cannot determine its true Genus.

It may be very easily propagated by Cuttings, which should be planted in *October*, soon after the Leaves drop, in a Bed of fresh Earth, in any Exposure, where almost every Cutting will succeed. They may also be planted in the Spring; but at this Season they are not so sure to take Root, as in the Autumn; for as the Plant is very early in coming out, so, unless the Cuttings are taken off some time before, they either will not grow, or, if they should take Root, they would not make much Progress the first Year. The Plants are also very apt to put out Suckers from their Roots, so that they may be increased in Plenty; for the Shoots which have been accidentally buried in the Ground, have shotten up the following Spring, and made good Plants.

This seems not to be a Tree of great Size, if we may judge by those in the *English* Gardens, which do not grow more than fourteen or sixteen Feet high; but they put out lateral Branches from the Ground upward, and do not make large Stems.

TAGETES, *African* or *French* Marigold.

The Characters are;

The Flower is radiated, consisting of divers Florets, which are plain, and cut into several Segments; but the Disk of the Flower consists of Half-florets, which stand upon the Embryoes: the Flower-cup consists of one Leaf, is tubulous, and incloses the Embryoes; which afterward become angular Seeds, with a Leaf upon the Head of each.

The Species are;

1. TAGETES maximus *rebus*, flore simplici, ex luteo pallido. J. B. Great-

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est upright *African* Marigold, with a single pale-yellow Flower.

2. *TAGETES maximus rectus, flore maximo multiplicato. J. B.* Greatest upright *African* Marigold, with a large double Flower.

3. *TAGETES maximus rectus, flore maximo multiplicato aurantii coloris.* Greatest upright *African* Marigold, with a very large double orange-colour'd Flower.

4. *TAGETES maximus rectus, flore maximo multiplicato sulphurei coloris.* Greatest upright *African* Marigold, with a very large double brimstone-colour'd Flower.

5. *TAGETES maximus rectus, flore maximo multiplicato, pallide luteo odorato.* Greatest upright *African* Marigold, with a very large double Flower of a pale-yellow Colour, and a sweet Scent.

6. *TAGETES maximus rectus, flore maximo multiplicato, pallide luteo, & fistuloso.* Greatest upright *African* Marigold, with a large double pale-yellow and piped Flower, commonly called the quilled *African*.

7. *TAGETES Indicus medius, flore simplici luteo pallido. J. B.* Indian middle *French* Marigold, with a single pale-yellow Flower.

8. *TAGETES Indicus medius, flore luteo multiplicato. H. L.* The middle *French* Marigold, with a double Flower.

9. *TAGETES Indicus minor, simplici flore, sive Caryophyllus Indicus, sive Flos Africanus. J. B.* Lesser or common *French* Marigold, with a single Flower, call'd *Indian* Clove-gilliflower.

10. *TAGETES Indicus minor, multiplicato flore. J. B.* Double *French* Marigold, *vulgo*.

11. *TAGETES Indicus, flore simplici fistuloso. H. L.* Single *French* Marigold, with a piped Flower.

12. *TAGETES Indicus, flore fistuloso*

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duplicato. H. L. Double *French* Marigold, with a piped Flower.

13. *TAGETES Indicus minimus, flore sericea hirsutie obfuso. H. L.* The least *French* Marigold, with a soft hairy Flower.

All these Plants are annual; so must be propagated from Seeds every Spring, which may be sown upon a moderate Hot-bed in *March*; and when the Plants are come up, they should have Plenty of fresh Air; for if they are drawn too much, they will not afterward become handsome, notwithstanding they have all possible Care taken of them. When they are about three Inches high, they should be transplanted on a very moderate Hot-bed, which may be arched over with Hoops, and cover'd with Mats; for these Plants are hardy enough to be brought up without Glasses: in this Bed they should be planted about six Inches asunder each Way, observing to water and shade them until they have taken Root; but as the Plants acquire Strength, they should be enur'd to bear the open Air by degrees; and about the Beginning of *May* they should be taken up, with a Ball of Earth to the Root of each Plant, and plac'd in a Nursery in a warm Situation, about eighteen Inches asunder, observing to water and shade them until they have taken Root; and in very dry Weather the Waterings should be repeated: in this Nursery they may remain until their Flowers appear, so as to distinguish those with double Flowers; which may be taken up with a Ball of Earth to each Plant, and planted into the Borders of the Parterre-garden, or into Pots, for furnishing the Courts, &c. where the several Varieties, being intermix'd with other annual Plants, afford an agreeable Variety.

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Those with single Flowers should be pull'd up, and thrown away as good for little, because the Seeds produced from them will rarely produce double Flowers: therefore great Care should be taken to save only the Seeds of those whose Flowers are very double of every Kind; from which there will always be a good Quantity of double ones produc'd; tho' from the very best Seeds there will always be some single Flowers; but the small Sorts always produce a greater Number of double Flowers than the large, which are more apt to degenerate.

These Plants have a strong disagreeable Scent, especially when handled; for which Reason they are not so greatly esteemed for planting near Habitations: but the Flowers of the sweet-scented Sort, being more agreeable, are mostly coveted to plant in small Gardens. All these Sorts begin to flower in *June*, and continue all the latter Part of the Year, until the Frost prevents their flowering: for which, together with the little Trouble requir'd in their Culture, they have greatly obtained in most *English* Gardens.

TAMARINDUS, The Tamarind-tree.

The Characters are;

The Flower consists of several Leaves, which are so plac'd as to resemble a papilionaceous one in some measure; but these expand circularly, from whose many-leav'd Flower-cup rises the Pointal; which afterward becomes a flat Pod, containing many flat angular Seeds, surrounded with an acid blackish Pulp.

We have but one Species of this Tree; viz.

TAMARINDUS. *Raii Hist.* The Tamarind-tree.

There are some who imagine the Tamarind-tree of the *East-Indies*,

and that of the *West-Indies*, to be different; but I don't remember to have seen them distinguish'd by any Botanic Author: tho' indeed, from the different Appearance of the Pods, they seem very different; for the Pods which I have seen of the *East-Indian* Sort were very long, and contain'd six or seven Seeds in each; whereas those of the *West-Indies* rarely contain more than three or four: but from the Plants which I have rais'd from both Sorts of Seeds, I can't distinguish them asunder as yet.

These Trees grow to a great Magnitude in their native Countries; but in *Europe* they are preserved as Curiosities by those who are Lovers of rare Plants.

They are easily propagated by sowing their Seeds on an Hot-bed in the Spring; and when the Plants are come up, they should be planted each into a separate small Pot fill'd with light rich Earth, and plunged into an Hot-bed of Tanners Bark, to bring them forward, observing to water and shade them until they have taken Root; and as the Earth in the Pots appears dry, they must be watered from time to time; and should have Air given to them in proportion to the Warmth of the Season, and the Bed in which they are placed: when the Pots in which they are planted are fill'd with their Roots, the Plants should be shifted into Pots of a larger Size, which must be fill'd up with rich light Earth, and again plunged into the Hot-bed, giving them Air, as before, according to the Warmth of the Season: but in very hot Weather the Glasses should be shaded with Mats in the Heat of the Day, otherwise the Sun will be too violent for them through the Glasses; nor will the Plants thrive, if they are expos'd to the open Air,

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even in the warmest Season ; so that they must be constantly kept in the Bark - stove both Winter and Summer, treating them as hath been directed for the Coffee-tree, with whose Culture they will thrive exceedingly.

These Plants, if rightly managed, will grow very fast ; for I have had them upward of three Feet high in one Summer from Seed, and had one Plant which produced Flowers the same Season it was sown : but this was accidental ; for I have never since had any of them flower, altho' I have several Plants of different Ages ; one of which is ten Years old, and about eleven Feet high, with a large spreading Head.

TAMARISCUS, The Tamarisk-tree.

The Characters are ;

The Flowers are rosaceous, consisting of several Leaves, which are placed orbicularly ; from whose Flower-cup rises the Pointal, which afterward becomes a Pod (somewhat like those of the Sallow), which opens into two Parts, and contains several downy Seeds.

The Species are ;

1. TAMARISCUS *Narbonensis*. Lob. Icon. The French or narrow-leav'd Tamarisk-tree.

2. TAMARISCUS *Germanica*. Lob. Icon. The German Tamarisk.

These Trees are preserv'd in the Gardens of those who are curious in collecting the various Kinds of Trees and Shrubs ; but they have not much Beauty to recommend them ; for their Branches are produc'd in so straggling a manner, as not, by any Art, to be train'd up regularly : and their Leaves are commonly thin upon the Branches, and fall away in Winter ; so that there is nothing to recommend them but their Oddness.

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They may be easily propagated, by laying down their tender Shoots in the Spring, or by planting Cuttings in an East Border in moist Weather ; which, if supplied with Water, will take Root in a short time ; but they should not be removed until the following Spring ; at which time they may be either placed in a Nursery, to be trained up two or three Years, or else into the Quarters where they are design'd to remain ; after which, the only Culture they will require, is, to prune off the straggling Shoots, and keep the Ground clean about them.

These Plants delight in a sandy Soil, not over-rich ; and should be plac'd amongst Shrubs of a middling Growth ; for they rarely grow above fifteen or sixteen Feet high in England ; but are very hardy as to Cold.

TAMNUS, The Black Bryony.

The Characters are ;

It is Male and Female in different Plants : the Flowers of the Male Plant consist of one Leaf, and are bell-shaped ; but these are barren : the Embryoes are produced on the Female Plants, which afterward become an oval Berry, including roundish Seeds : to these Notes should be added, That these Plants have no Claspers, as the White Bryony hath.

The Species are ;

1. TAMNUS *racemosa*, flore minore luteo pallescente. Tourn. The common Black Bryony.

2. TAMNUS *Cretica*, trifido folio. Tourn. Cor. Black Bryony of Crete, with a trifid Leaf.

3. TAMNUS *Americana tubifera*, radice fungiformi. Plum. American Black Bryony, with a Root resembling Mushroom.

4. TAMNUS *Americana racemosa minor*. Plum. Smaller branching American Black Bryony.

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5. *TAMNUS Americana racemosa* major. Plum. Greater branching American Black Briony.

6. *TAMNUS Americana, amplis foliis, subtus purpureis.* Plum. American Black Bryony, with large Leaves, which are purple on their Under-side.

7. *TAMNUS Americana, anguriae folio.* Plum. American Black Bryony, with a Water-melon-leaf.

The first Sort is rarely cultivated in Gardens; but grows wild under the Sides of Hedges in divers Parts of England; and is there gather'd for medicinal Use. It may be easily propagated, by sowing the Seeds soon after they are ripe, under the Shelter of Bushes, where, in the Spring, the Plants will come up, and spread their Branches over the Bushes, and support themselves, requiring no farther Care; and their Roots will abide many Years in the Ground, without decaying.

The second Sort was discovered in the Island of Crete, by Dr. Tournefort, who sent their Seeds to the Royal Garden at Paris: this is an abiding Plant, which is hardy enough to live in the full Ground in England.

The other Sorts were discovered in America by Father Plumier: most of these grow wild in the uncultivated Parts of Jamaica, and the other Islands in the West-Indies: these Plants are preserved in some Botanic Gardens, for the sake of Variety; but as they have but little Beauty, they are seldom admitted into other Gardens; for they will not live thro' the Winter in England, unless they are preserved in a Stove.

TANACETUM, Tanfy.

The Characters are;

It hath a flosculous Flower, consisting of many Florets, divided into several Segments, sitting on the Embryo,

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and contained in a squamous and hemispherical Empalement: the Embryo afterward becomes a Seed, not at all downy: to these Notes must be added, Thick Flowers gathered into a kind of Head.

The Species are;

1. *TANACETUM vulgare luteum.* C. B. P. Common Tanfy.

2. *TANACETUM foliis crispis.* C. B. P. Curl'd or double Tanfy.

3. *TANACETUM vulgare, foliis variegatis.* Common Tanfy, with striped Leaves.

4. *TANACETUM vulgare luteum maximum.* Boerb. Ind. The largest common Tanfy.

5. *TANACETUM Africanum arborescens, foliis lavendulae, multifido folio.* H. Am. African shrubby Tanfy, with Leaves like the multifid Lavender.

6. *TANACETUM Orientale minus.* Tourn. Cor. Smaller Eastern Tanfy.

7. *TANACETUM Davaricum humilium, foliis tenuiter dissectis.* Amman. Tanfy of Davaria, with fine-cut Leaves.

8. *TANACETUM Africanum frutescens multiflorum, foliis tanaceti vulgaris decuplo minoribus.* Boerb. Ind. Shrubby African Tanfy, with many Flowers, and Leaves like the common Sort, but ten times less.

The first and second Sorts are very common in England, being promiscuously cultivated in Gardens, for the Use of the Kitchen; but it is the first which should be propagated for medicinal Use. The third Sort is a Variety of the first, which is by some preserv'd for the sake of its variegated Leaves.

The fourth Sort is very like the common in Appearance; but is much larger, and has less Scent.

All these Sorts are easily propagated by their creeping Roots, which, if permitted to remain undisturb'd, will

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will in a short time overspread the Ground where they are planted; so that the Slips should be plac'd at least a Foot asunder, and in particular Beds, where the Paths round them may be often dug, to keep their Roots within Bounds. They may be transplanted either in Spring or Autumn, and will thrive in almost any Soil or Situation.

The common Tanfy is greatly used in the Kitchen early in the Spring; at which Season, that which is in the open Ground, or especially in a cold Situation, is hardly forward enough to cut; so that where this is much wanted at that Season, it is the best way to make a gentle Hot-bed in *December*, and plant the old Roots thereon, without parting them; and arch the Bed over with Hoops, to cover it with Mats in cold Weather; by which Method the Tanfy will come up in *January*, and be fit to cut in a short time after.

The fifth and eighth Sorts were brought from the *Cape of Good Hope*, and are preserv'd in the Gardens of those who are curious in collecting Exotic Plants. These may be propagated by planting Cuttings or Slips, during any of the Summer-months, upon a Bed of light rich Earth, observing to water and shade them until they have taken Root; after which they may be taken up, and planted in Pots fill'd with fresh light Earth, placing them in a shady Situation until they have taken new Root; and then they may be exposed in an open Place, amongst other Exotic Plants, until the Beginning of *October*; when they must be remov'd into the Green-house, observing to place them in the coolest Part thereof, and as near the Windows as possible, that they may enjoy the free

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Air in mild Weather; otherwise they will draw up weak, and be liable to grow mouldy, and decay.

They must also be frequently water'd; but in very cold Weather they must not have too much Water given them at each time; though in Summer they should have it in plenty. With this Management (together with observing to shift them into larger Pots, as they shall require it), the Plants will grow large, and produce a great Quantity of Flowers; which commonly appear early in the Spring, and thereby greatly add to the Variety of the Green-house.

The sixth Sort was discover'd by Dr. *Tournefort* in the *Levant*; from whence he sent the Seeds to the Royal Garden at *Paris*. The seventh Sort was sent to me from *Petersburgh*, by Dr. *Amman*, who was Professor of Botany in that University. Both these, being very hardy Plants, may be propagated by Seeds, or parting of their Roots, in the same manner as is practis'd for the common Sort; but the Roots of these Kinds do not creep so much as those of the common Sort.

TAN, or TANNERS BARK, is the Bark of the Oak tree, chopp'd or ground into coarse Powder, to be us'd in Tanning or Dressing of Skins; after which it is of great Use in Gardening: First, by its Fermentation (when laid in a Body), which is always moderate, and of a long Duration, which renders it of great Service for Hot-beds: and, secondly, after it is well rotted, it becomes excellent Manure for all Sorts of cold stiff Land; upon which one Load of Tan is better than two of rotten Dung, and will continue longer in the Ground.

TAPIA, The Garlick Pear-tree.

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The Characters are ;

It hath an anomalous Flower, consisting of four Petals or Leaves, which stand erect ; the lower Part being occupied by a Number of Chives : the Pointal, which is fix'd on a long Footstalk, rises from the Centre of the Empalement, and afterward becomes a globular fleshy Fruit ; in the Centre of which are included many Seeds, which are shaped almost like Kidneys.

We have but one Species of this Plant ; viz.

TAPIA arborea triphylla. Plum. Nov. Gen. The Garlick Pear-tree, vulgo.

The Name *Tapia* is what the Americans call this Tree ; so Father Plumier has constituted it as a new Genus, by the same Name. The English Inhabitants of America call it Garlick-pear, from the Fruit having a very strong Scent of Garlick.

This Tree is pretty common in Jamaica, and several other Places in the warmer Parts of America, where it usually rises to the Height of thirty or forty Feet, and spreads into many Branches. During the dry Seasons, these Trees are usually destitute of Leaves ; but when the Rains begin, they thrust out their Flowers at the Extremity of their Branches ; and soon after their Leaves come out, which are of a dark-green Colour ; and are always three together on the same Footstalk. When the Flowers fall off, the Pointal becomes a round Fruit, about the Size of a Tennis-ball ; which, when ripe, has a rough brownish Rind, and a mealy sweetish Pulp, somewhat like some of the European Pears ; but has a strong Scent of Garlick. This Fruit is often eaten by the Inhabitants of America, by way of Dessert ; tho' they are not very tempting. The Swine, which are sometimes fattened

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with this Fruit, have the strong Scent of Garlick communicated to their Flesh. These Trees generally grow on low moist Land in several Parts of America.

In Europe this Tree is preserv'd by some curious Persons, who cultivate tender Exotic Plants. It is propagated by Seeds, which should be sown on an Hot-bed early in the Spring ; and when the Plants are come up, they should be each transplanted into a separate small Pot fill'd with rich Earth, and then plunged into a moderate Hot-bed of Tanners Bark ; observing to shade them from the Sun every Day, until they have taken new Root ; after which time they must be treated in the same manner as hath been directed for the Guanabanus ; with which Management, this Plant will thrive, and make a Variety in the Stove, amongst other tender Exotic Plants.

TARCHONANTHUS.

The Characters are ;

It hath a compound Flower, composed of several Florets, which are Hermaphrodite ; and Half-florets, which are Female : the Florets are tubulous, and of one Leaf, cut into five Parts at their Brim : the Half-florets surround the other, and compose the Rays : these are included in one common simple Empalement : the Hermaphrodite Flowers are barren ; but the Female Flowers are succeeded by a single compress'd Seed.

We have but one Species of this Genus in the English Gardens at present ; viz.

TARCHONANTHUS salicis capreae foliis odoratis. Vaill. Mem. 1719. Tarchonanthus with fallow sweet-smelling Leaves : this is commonly known by the Title of African Tree Fleabane, with a Sage-leaf smelling like Rosmary.

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This Plant will grow to the Height of twelve or fourteen Feet, with a strong woody Stem, and may be train'd to have a regular Head. The Branches are garnish'd with Leaves, which are in Shape like those of the broad-leav'd Sallow; having a downy Surface, like those of Sage, and their Under-sides are white: these resemble in Smell the Rosmary-leaves when bruish'd. The Flowers are produc'd in Spikes at the Extremity of the Shoots, which are of a dull purple Colour; so do not make any great Appearance; but as the Leaves remain all the Year, these Plants are preserv'd to make a Variety in the Green-house, during the Winter-season, by those who are curious in collecting of foreign Plants.

This Plant is a Native of *Africa*; so is too tender to live through the Winter in the open Air in *England*; but it requires no artificial Heat; therefore may be plac'd in a common Green-house with Myrtles, Oleanders, and other hardy Exotic Plants, in Winter; and in the Summer may be expos'd with them in the open Air, and treated in the same manner as they are.

It may be propagated by Cuttings, which should be planted in *May*, in Pots fill'd with light Earth; and if they are plung'd into a moderate Hot-bed, it will promote their putting out Roots. These should be shaded with Mats, or cover'd with oiled Paper, to screen them from the Sun until they are rooted; and they must be duly water'd. By *August* these Cuttings will have taken Root, when they should be each transplanted into a separate Pot, and plac'd in the Shade until they have taken new Root; after which time they may be plac'd with other hardy Exotic Plants in a shelter'd Situation,

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where they may remain till the Middle or End of *October*, when they should be remov'd into the Green-house, placing them where they may have a large Share of Air in mild Weather. This Plant is very thirsty, so must be often water'd; and every Year the Plants must be shifted, and, as they increase in Size, should be put into larger Pots.

TARRAGON. *Vide* Abrotanum.

TAXUS, The Yew-tree.

The Characters are;

It hath amentaceous Flowers, which consist of many Apices, for the most part shaped like a Mushroom, and are barren; but the Embryoes (which are produc'd at remote Distances on the same Tree) do afterward become hollow: it hath bell-shaped Berries, which are full of Juice, and include Seeds somewhat like Acorns, having, as it were, a little Cup to each.

The Species are;

1. TAXUS. *J. B.* The common Yew-tree.
2. TAXUS *folio latiori, magisque splendente. Boerb. Ind.* Yew-tree with a broader and more shining Leaf.
3. TAXUS *foliis variegatis. H. R. Par.* The Yew-tree with striped Leaves.

The two first Sorts are often promiscuously cultivated in Gardens, without Distinction; but the third is preserv'd by some for the sake of its variegated Leaves, tho' there is very little Beauty in them; for during the Summer-season, when the Plants are in Vigour, the Stripes in the Leaves are hardly to be perceived; but in Winter they are more obvious: however, the Stripe being rather a Blemish, than any real Beauty, it is hardly worth preserving.

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There is hardly any Sort of ever-green Tree, which has been so generally cultivated in the *English* Gardens, upon the account of its being so tonfible, as to be with Ease reduc'd into any Shape the Owner pleas'd ; and it may be too often seen, especially in old Gardens, what a wretched Taste of Gardening did generally prevail, from the monstrous Figures of Beasts, &c. we find these Trees reduc'd into : but of late this Taste has been justly exploded by many Persons of superior Judgment : for what could be more absurd than the former Methods of planting Gardens ? where, in the Part next the Habitations, were crowded a large Quantity of these and other Sorts of ever-green Trees, all of which were sheer'd into some trite Figure or other ; which, beside the obstructing the Prospect from the House, occasion'd an annual Expence, to render the Trees disagreeable. For there never was a Person, who had consider'd the Beauty of a Tree in its natural Growth, with all its Branches diffus'd on every Side, but must acknowledge such a Tree infinitely more beautiful than any of those shorn Figures, so much studied by Persons of a groveling Imagination.

The only Use I would recommend this Tree for in Gardens, is to form Hedges for the Defence of Exotic Plants ; for which Purpose it is the most proper of any Tree in Being : the Leaves being small, the Branches are produc'd very closely together ; and if carefully shorn, they may be render'd so close, as to break the Winds better than any other Sort of Fence whatever ; because they will not be reverberated, as against Walls, Pales, and other close Fences ; and consequently are

much to be preferr'd for such Purposes.

These Trees may be easily propagated by sowing their Berries in Autumn, as soon as they are ripe (without clearing them from the Pulp which surrounds them, as hath been frequently directed), upon a Bed of fresh undung'd Soil, covering them over about half an Inch thick with the same Earth.

In the Spring the Bed must be carefully clear'd from Weeds ; and if the Season prove dry, it will be proper to refresh the Bed with Water now-and-then, which will promote the Growth of the Seeds ; many of which will come up the same Spring, but others will remain in the Ground until the Autumn or Spring following ; but where the Seeds are preserv'd above-ground till Spring before they are sown, the Plants never come up till the Year after ; so that by sowing the Seeds as soon as they are ripe, there is many times a whole Year saved.

These Plants, when they come up, should be constantly clear'd from Weeds ; which, if permitted to grow amongst them, would cause their Bottoms to be naked, and many times destroy the Plants, when they continue long undisturb'd.

In this Bed the Plants may remain two Years ; after which, in the Autumn, there should be a Spot of fresh undung'd Soil prepar'd, into which the Plants should be remov'd the Beginning of *October* ; placing them in Beds about four or five Feet wide, planting them in Rows about a Foot asunder, and six Inches Distance from each other in the Rows ; observing to lay a little Mulch upon the Surface of the Ground about their Roots, as also to water them in dry Weather until they have taken

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ken Root ; after which they will require no farther Care, but to keep them clear from Weeds in Summer, and to trim them according to the Purpose for which they are design'd.

In these Beds they may remain two or three Years, according as they have grown, when they should be again remov'd into a Nursery; placing them in Rows at three Feet Distance, and the Plants eighteen Inches asunder in the Rows; observing to do it in the Autumn, as was before directed, and continue to trim them in the Summer-season, according to the Design for which they were intended; and after they have continued three or four Years in this Nursery, they may be transplanted where they are to remain, always observing to remove them in the Autumn where the Ground is very dry; but on cold moist Land it is better in the Spring.

These Trees are very slow in growing; but yet there are many very large Trees upon some barren cold Soils, in divers Parts of England: the Timber of these Trees is greatly esteem'd for many Uses.

TELEPHIOIDES, Bastard Orpine. *Vide* Andrachne and Phyllanthos.

TELEPHIUM, Orpine, or Live-long.

The Characters are;

It hath a rose-shap'd Flower, consisting of several Leaves plac'd orbicularly; out of whose many-leav'd Empalement rises the Pointal, which afterward becomes a three-corner'd Fruit, consisting of one Cell, which is filled with roundish Seeds: to these Notes should be added, That the Leaves are placed alternately on the Branches.

The Species are;

1. TELEPHIUM *Dioscoridis*. Imper. The true Orpine of *Dioscoridis*, according to *Imperatus*.

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2. TELEPHIUM *Americanum*, *portulacæ folio*. *Inst. R. H. American* Orpine, with a Purslain-leaf.

3. TELEPHIUM *maritimum*, *sedifolio*, *flore rubello*. *Inst. R. H. Maritime* Orpine, with an Houseleek-leaf, and a red Flower.

4. TELEPHIUM *maritimum*, *sedifolio*, *flore albo*. *Inst. R. H. Maritime* Orpine, with an Houseleek-leaf, and a white Flower.

The first Sort is a Native of *Italy*, *Spain*, and the Southern Parts of *France*; from whence the Seeds have been procur'd by some Persons who are curious in Botany, who preserve it in their Gardens for the sake of Variety. It is a low Plant, whose Branches trail on the Ground: the Leaves are small and roundish, of a glaucous Colour, and of a pretty thick Consistence. The Flowers are small, and of a whitish-green Colour; so that the whole Plant makes but an ordinary Appearance.

This Sort may be propagated by Seeds, which should be sown early in the Spring, on a Bed of fresh light Earth, in an open Situation; and when the Plants are come up, they should be thinned, so as to leave them six or eight Inches asunder; and they must be constantly kept clear from Weeds: for if these are permitted to grow, they will soon overbear the Plants, and destroy them.

In June they will begin to flower, and their Seeds will ripen in August; when they must be carefully watched to gather the Seeds, otherwise they will soon be scatter'd abroad; and if the Ground is not disturb'd, the Plants will come up in plenty, and require no other Care, than to keep them clear from Weeds.

The second Sort is a Native of *America*, from whence the Seeds have been

been brought to several curious Gardens in *Europe*. This is a tender Plant; so the Seeds should be sown on an Hot-bed early in the Spring; and when the Plants are come up, they should be each transplanted into a small separate Pot with fresh light undung'd Earth, and then plunged into a moderate Hot-bed of Tanners Bark, observing to shade them from the Sun in the Middle of the Day for a little time, if the Weather should prove hot, until they have taken new Root; after which time they should have free Air admitted to them every Day, in proportion to the Warmth of the Season; and in hot Weather they must be frequently refresh'd with Water: but as the Leaves and Branches are succulent, they should not have too much Moisture, lest it rot them. In *July* the Plants will begin to flower, and in *September* the Seeds will ripen, and the Plants will perish soon after; for they are annual; so that if the Plants are not brought forward early enough in the Spring, they will not produce good Seeds in this Country.

The third Sort was brought from the *Cape of Good Hope*, where it grows in great Plenty near the Sea-side. The fourth Sort is a Variety of the third, only differing in the Colour of its Flower. These Sorts may be propagated by Seeds, which should be sown on a moderate Hot-bed in the Spring; and when the Plants are come up, they may be transplanted on another moderate Hot-bed, to forward their Growth; and when they are pretty strong, they should be each planted into a separate Pot filled with fresh Earth, and placed on a gentle Hot-bed, to forward their making new Roots; and in *June* they should be enured to bear

the open Air by degrees, into which they may be remov'd, and plac'd in a warm Situation, amongst *Ficoides's*, and other succulent Plants, which are Natives of the same Country; where they may remain until *October*, when they should be remov'd into an airy Glass case, where they may be treated in the same manner as hath been directed for the *Ficoides's*; with which Management these Plants will thrive very well. These Plants may also be propagated by Cuttings, which may be taken from the old Plants during any of the Summer-months; and should be laid to dry for a few Days before they are planted, in the same manner as is practis'd for other succulent Plants: then they may be planted in a Bed of light Earth, where they will soon take Root, and may be planted afterward in Pots, and treated as the seedling Plants.

TEREBINTHUS, The Turpentine-tree.

The Characters are;

It is Male and Female in different Plants: the Flowers of the Male have no Petals, but consist of a Number of Stamina with Chives: the Embryoes, which are produc'd on the Female Trees, afterward become an oval Fruit with an hard Shell, inclosing one or two oblong Kernels: to these Notes must be added, The Leaves are pennated, or wing'd, which are produc'd by Pairs, opposite, and end in a single Lobe.

The Species are;

1. TEREBINTHUS *vulgaris*. C.
B. P. The common Turpentine-tree.

2. TEREBINTHUS *Indica Theophrasti, Pistachia Dioscoridis*. Lob.
Adv. The Pistachia-tree, *vulgo*.

3. TEREBINTHUS *peregrina, fructu majore, pistachii simile, eduli*. C.
B.

B. P. Foreign Turpentine - tree, with a larger eatable Fruit, like the Pistachia-nut.

4. *TEREBINTHUS peregrina, fructu minore & cœruleo, eduli.* C. B. P. Foreign Turpentine-tree, with a smaller blue eatable Fruit.

5. *TEREBINTHUS seu Pistachia trifolia.* Inst. R. H. The three-leav'd Turpentine or Pistachia-tree.

6. *TEREBINTHUS Cappadocica.* H. R. Par. The Turpentine-tree of Cappadocia.

7. *TEREBINTHUS Americana, pistachiæ fructu non eduli.* Plum. American Turpentine-tree, with a Fruit like the Pistachia-nut, which is not eatable.

8. *TEREBINTHUS major, betulae cortice, fructu triangulari.* Sloan. Cat. The Greater Turpentine-tree, with a Bark like the Birch-tree, and a triangular Fruit, commonly call'd, in the *West-Indies*, The Birch-tree.

The second Sort is much more common in the *English* Gardens than any of the other ; because the Nuts of the Pistachia-tree are annually brought to *England* for the Table ; and these, being planted, will grow very well ; so that many of these Trees have been lately rais'd in *England* ; whereas the Seeds of the other Sorts are rarely brought over.

The six Sorts first-mention'd are Natives of the Islands in the *Archipelago*, and some other Places in the East ; from whence their Seeds have been brought into *Europe*, where the Plants have been preserv'd by some curious Persons.

The Seeds (or Nuts) of all these Trees should be sown in Pots fill'd with fresh light Earth, and plung'd into a moderate Hot-bed ; observing to refresh the Earth with Water frequently, as it may have Occasion ; and when the Plants are come up (which those of the Pistachia will do

in six Weeks after sowing), they should be enured to bear the open Air by degrees, into which they must be remov'd the Beginning of *June*, placing them where they may be screen'd from the Violence of the Winds ; in which Situation they may remain until *October*, when they should be remov'd either into a common Hot-bed-frame, or else into a Green-house, where they may be defended from hard Frost ; but should have as much free Air as possible in mild Weather, and must be frequently refresh'd with Water.

In *March* following these Plants should be remov'd, and each planted in a separate Pot fill'd with fresh light Earth ; and as the Spring advances, they should be again removed into the open Air, and plac'd amongst other Exotic Plants, observing to water them frequently in dry Weather ; and when their Roots are confin'd by the Smalness of the Pots, they must be shifted, being careful not to break the Earth off from their Roots ; which will greatly injure them, unless it be done before the Plants begin to shoot in the Spring ; for at that Season they maybe transplanted with as much Safety as any other deciduous Trees.

In this manner these Plants should be treated for three or four Years, while young ; after which time the Pistachia's may be planted into the full Ground ; observing to place them in a warm Situation, and dry Soil, where they will endure the Cold of our ordinary Winters very well ; as may be seen by a very large Tree of this Kind, now growing in the Gardens of the Earl of *Peterborough* at *Parsons-green*, near *Fulham*, which produces abundance of Fruit, without any manner of Care : but these Fruit do not ripen in *England*. These are Male and Female

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Female in different Trees ; so that in order to have good Fruit, there must be both Sexes planted near each other.

The other Sorts are as hardy as this ; so may be treated in the same manner. There are some old Plants of the Turpentine-tree in the *English* Gardens, which are growing against Walls, and have resisted the Cold of our Winter many Years ; though all these Sorts are tender while they are young, and must have a little Shelter for three or four Years, until the Plants have obtained Strength ; after which they will live in the open Air, and are seldom injur'd but by severe Frost.

The fifth and sixth Sorts grow plentifully in the Island of *Jamaica*, and in several other Places in the *West-Indies* ; where the fifth Sort is called the *Hog-doctor*, or *Boar-tree*, and the sixth Sort is called the *Birch-tree*. These Trees grow to the Height of thirty or forty Feet in the Places of their natural Growth, and have very large Trunks. The fifth Sort produces small purple Flowers at the Extremity of their Branches, which generally appear before the Leaves come out ; for the Trees are destitute of their Leaves a considerable time. From the Trunk and Branches of this Tree, there issues out a Balsam of the Consistence and Smell of Turpentine ; which is greatly used by the Inhabitants to heal green Wounds.

The sixth Sort produces small purple Flowers at the Extremity of the Branches, which generally precede the Leaves, like the other Sort : for the Leaves of this Tree fall off in *November* ; and in *February* they put out new ones. The Trunk and Branches of this Tree being wounded, there flows out a liquid Balsam, which the Inhabitants call *Hoggum*,

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and make use of it to vomit or purge in chronical Diseases : the usual Dose is a Quarter of an Ounce for a strong Man, which is given in a Glass of Water ; and will certainly vomit in a Quarter of an Hour after taking, without making the Person sick, or causing any Uneasiness. The Inhabitants of *Jamaica* confidently affirm, that when the wild Hogs are wounded, they will repair to these Trees, and rub against the Trunks till the Balsam flows out ; when they rub their wounded Part on the Balsam, which cures them ; which occasion'd their calling it the *Hog-doctor-tree*.

These Trees may be propagated either by Seeds or Cuttings ; but the Seeds will not retain their growing Quality long ; therefore they should be put into a Box of Earth soon after they are ripe, and when the Plants are come up, and have obtained Strength, they may be brought to *England* ; but there should be great Care taken of them in their Passage, that they are not injur'd by salt Water ; not should they have much fresh Water given to them, especially as they come into a cooler Climate ; for too much Moisture will soon destroy them. In like manner also should the Cuttings of these Trees be managed ; for they should be planted in Tubs of Earth, and kept in the Country until they are well rooted ; for if they are sent over before they have taken good Root, they seldom come good to *England*. When these arrive, they should be each transplanted into separate Pots fill'd with fresh light Earth, and plung'd into a moderate Hot-bed of Tanners Bark ; observing, if the Season is very warm, to shade them from the Sun in the Heat of the Day, and refresh them every other Day with Water ; but do not

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give it them in great Quantities, lest it rot their tender Roots. When the Plants have taken good Root, and recover'd the Injuries they receiv'd in their Passage, they may be treated in the same manner as is practis'd for other tender Exotic Plants, keeping them constantly in the Bark-stove; for they are too tender to live in the open Air in this Country. During the Winter-season, when they are destitute of Leaves, they should have but little Water; but in the Summer, when the Weather is warm, they may have frequent Refreshings, and a good Share of Air should be admitted to them at that Season. With this Management the Plants will thrive, and afford an agreeable Variety in the Stove, amongst other Plants of the same Country.

TERNATEA.

The Characters are;

It hath a papilionaceous (or pea-bloom) Flower, whose Standard almost hides the Keel, and the Wings: the Pointal afterward becomes a Pod, which opens two Ways, and is filled with kidney-shap'd Seeds: to these Notes should be added, That the Leaves are winged, and are terminated by an odd Lobe.

The Species are;

1. TERNATEA *flore simplicis cæruleo.* Acad. Reg. Scien. Ternatea with a single blue Flower.

2. TERNATEA *flore pleno cæruleo.* Acad. Reg. Scien. Ternatea with a double blue Flower.

3. TERNATEA *flore simplicis albedo.* Acad. Reg. Scien. Ternatea with a single white Flower.

4. TERNATEA *Americana perennis.* *flore cæruleo.* Houst. American perennial Ternatea, with a blue Flower.

The Name which Dr. Tournefort has given to this Genus of Plants is,

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from the Place whence these Plants were first brought; which is one of the *Molucca* Islands, call'd *Ternate*.

The three first-mention'd Sorts are annual Plants, which perish soon after they have perfected their Seeds; but the fourth Sort will abide several Years, provided the Plants are placed in a warm Stove. They are all of them tender Plants; so their Seeds should be sown on an Hot-bed early in the Spring; and when the Plants are come up, they should be each transplanted into a separate small Pot fill'd with fresh light Earth, and then plung'd into a moderate Hot-bed of Tanners Bark; observing to shade them from the Sun until they have taken new Root, and often refresh them with Water. As these Plants have very slender Branches, so they twist round whatever Plants grow near them; therefore they should have Sticks thrust into the Pots, for them to twine round, that they may be supported from trailing on the Ground. In warm Weather these Plants should have a large Share of free Air admitted to them, otherwise they will draw up too weak; and when they are grown so tall as to reach the Glasses of the Hot-bed, they should be taken out, and (after having shifted them into larger Pots) they should be plung'd into the Bark-bed in the Stove, where they should remain to flower, and perfect their Seeds.

The Flowers of the first and second Sorts are of a very deep blue Colour; and, if put in Water, and macerated, will dye the Water almost as blue as *Indigo*. The second Sort, having very double Flowers, makes a fine Appearance when it is in Flower; so is worthy of a Place in every good Garden, where there is Conveniency for bringing them to Perfection. For as they are very tender,

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tender, if they are not brought forward early in the Spring, and carefully treated afterward, they will not perfect their Seeds in this Country.

The third Sort differs from the first only in the Colour of the Flower; so may be admitted for the sake of Variety, tho' the Flowers are not near so beautiful.

The Fourth Sort was discover'd by the late Dr. *William Houshoun* in *Jamaica*, from whence he sent the Seeds to *England*. This is an abiding Plant, which rarely produces any Flowers in this Country; for from several of these Plants, which have been raised in the Physic-garden, there has but one of them produc'd any Flowers; and that not more than three Flowers, tho' it has remain'd several Years.

TERRACES: A Terrace is a small Bank of Earth, rais'd and trimm'd according to Line and Level, for the proper Elevation of any Person that walks round a Garden, that he may have a better Prospect of all that lies round him; and these Elevations are so necessary, that those Gardens that have them not, are deficient.

When Terraces are rightly situated, they are great Ornaments to such Gardens as have them, for their Regularity and Opening; especially when they are well built, and beautify'd with handsome Stairs, and fine Ascents.

There are several Kinds of Terrace-walks:

1. The great Terrace, which lies next to the House.
2. The side or middle Terrace, which is commonly raised above the Level of the Parterre, Lawn, &c.
3. Those Terraces which encompass a Garden.

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4. Those Terraces which lie under one another, being cut out of a large Hill; and these are different one from another, in some respect or other.

As to the Breadth of side Terraces, this is usually decided by its Correspondence with some Pavilion, or some little Jettee or Building; but most of all by the Quantity of Stuff that is to spare for those Purposes.

The side Terrace of a Garden ought not to be less than twenty Feet, and but very seldom wider than forty.

As for the Height of a Terrace, some allow it to be but five Feet high; but others more or less, according to their Fancies; but the more exact Persons never allow above five or six Feet; and in a small Garden, and a narrow Terrace-walk, three Feet; and sometimes three Feet and an half high are sufficient for a Terrace eighteen Feet wide; and four Feet are sufficient for a Terrace of twenty Feet wide; but when the Garden is proportionably large, and the Terrace is thirty or forty Feet wide, then it must be at least five or six Feet high.

The noblest Terrace is very deficient without Shade; for which Elm-trees are very proper: for no Seat can be said to be complete, where there is not an immediate Shade, almost as soon as out of the House; and therefore these shady Trees should be detach'd from the Body and Wings of the Edifice.

Terraces should be planted rather with Elm or Lime-trees, than with Yew or Holly; which will not grow large enough to afford Shade.

The Distance of the Elms across will be about twenty Feet; and they may be plac'd thirty Feet asunder in Lines.

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TETRAGONOCARPOS.

The Characters are;

It hath an apetalous Flower, whose Empalement is divided into four Parts: in the Middle of the Flower rises the Pointal, attended by a great Number of Stamina, crown'd with flat Summits, and rest on the oval Pointal, which afterward becomes a Fruit, having four Wings or Corners, and four Cells; in each of which is contain'd one Seed.

The Species are;

1. TETRAGONOCARPOS *Africana fruticans, foliis longis & angustis. H. Amst.* African shrubby Tetragonocarpus, with long narrow Leaves.

2. TETRAGONOCARPOS *Africana, folio portulacæ longo, flore herbaceo. Boerb. Ind. alt.* African Tetragonocarpus, with a long Purslain-leaf, and an herbaceous Flower.

3. TETRAGONOCARPOS *Africana, radice magna crassa & carnosâ. Hort. Amst.* Tetragonocarpus with a large fleshy Root, and oval Leaves.

The two first Sorts are pretty common in the *Englis* Gardens, where there are Collections of rare Plants. These may be propagated by Cuttings, which should be cut off from the Plants a few Days before they are planted, that the Part where they are cut may be healed, otherwise they will rot; for the Leaves and Stalks of this Plant are very full of Moisture. The best time to plant these Cuttings is in *July*, that they may have time to make good Roots before Winter. These Cuttings may be planted on a Bed of fresh Earth; and if the Cuttings are shaded from the Sun in the Heat of the Day, it will be of Service to them. They should be frequently refresh'd with Water; but they must not have it in too great Plenty, for that will rot them. In about six Weeks after Planting, the Cuttings will be suf-

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ficiently rooted to transplant; therefore they should be taken up, and planted into Pots fill'd with fresh light undung'd Earth, and plac'd in a shady Situation, until they have taken new Root; after which time they may be plac'd with other hardy Exotic Plants, in a shelter'd Situation, where they may remain till the Middle or Latter-end of *October*; at which time they should be remov'd into the Green-house, and plac'd where they may enjoy as much free Air as possible in mild Weather; for they only require to be protected from the Frost, being pretty hardy with respect to Cold; but they should not have too much Moisture in Winter. If these Plants are planted in the full Ground in the Summer-season, they will grow prodigiously rank and large; as they also will, if they are permitted to root into the Ground through the Holes at the Bottom of the Pots; therefore the Pots should be frequently remov'd to prevent it: for when they grow too freely, their Leaves will be very full of Moisture; which, together with the Weight of the Fruit, which are always produc'd at the Extremity of the Branches, will weigh the Branches upon the Ground, and render the Plants very unsightly. The Plants of this Kind commonly grow very straggling; therefore, the more their Roots are confin'd in the Pots, the more close and stunted will be the Heads of the Plants; which is what they should always be kept to, in order to render them sightly. The Flowers of this Plant have no great Beauty; but as the whole Face of the Plant is peculiar, it may be allow'd a Place in every Collection of Plants, for the sake of Variety; since it requires no great Trouble to cultivate it.

These Plants may also be propagated

gated by Seeds, which should be sown on a warm Border of fresh light Earth, where sometimes they will remain a whole Year before the Plants come up; therefore, when they do not come up the first Season, the Borders should not be disturb'd, but kept constantly clear from Weeds; and when the Plants are come up about four Inches high, they should be taken up, and planted in Pots (and treated in the same manner as hath been directed for the Cuttings); for if they are suffer'd to grow in the Border till they are large, they will not transplant so well; nor will they make so handsome Plants.

The third Sort hath large fleshy Roots; the Branches are weak, and trail upon the Ground: these decay intirely about *Midsummer*, and new Shoots are produced in the Autumn. The Flowers are produced from the Wings of the Leaves in *February*; but this Sort seldom produces good Seeds; however, the Cuttings will grow, if they are planted early in the Spring; so that the Sort may be propagated with the same Facility as either of the other Kinds.

All these Sorts require Protection in Winter; but if they are plac'd in an airy Glass-case, with Ficoides, and other hardy Plants, where they may have a large Share of free Air in mild Weather, and protected from the Frost, they will thrive much better than when they are more tenderly treated.

TETRAGONOTHECA, Sunflower, *vulgo*.

The Characters are;

It hath a compound Flower, compos'd of several Florets, which are tubulous; these are Hermaphrodite, and are situated in the Middle; the Half-florets, which compose the Rays, are Female: these have one Segment

stretch'd out like a Tongue, which is cut into three acute Segments; these are all included in one common Empalement, which is cut into four large Segments: the Florets are succeeded by one naked oval Seed: to which Notes may be added, The Empalement of the Flower swells like a Bladder, and is four-corner'd; which distinguishes it from all the Plants of this Tribe.

We have but one Species of this Genus; *viz.*

TETRAGONOTHECA *doronici* *maximi folio*. Hort. *Elth.* Dwarf Sunflower, with a Leaf like the greater Leopard's-bane.

This Plant is a Native of *Carolina*, from whence the Seeds were brought to *Europe*; and the Plants are now growing in some curious Gardens. The Roots of this Plant are perennial; but the Stalks are annual, and perish in the Autumn on the Approach of Cold. The Roots will abide through the Winter in the full Ground, if they are planted in a warm Situation; so do not require any Shelter, except in very severe Winters; when, if they are cover'd over with rotten Tan, or Peas-haulm, to keep out the Frost, there will be no Danger of their being kill'd.

About the Latter-end of *April*, or the Beginning of *May*, the Roots will send forth new Shoots; which are garnish'd with large oblong rough Leaves, plac'd by Pairs opposite to each other, closely embracing the Stalks: these are a little sinuated on their Edges, and are cover'd with small Hairs. The Stalks usually grow about two Feet high in *England*, and branch out toward the Top into several smaller Stalks, each having one large yellow Flower at their Top, shap'd like a Sunflower; which, before it expands, is cover'd with the

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inflated Empalement, which is four-corner'd. The Seeds of this Plant rarely ripen in *England*; but when they are obtain'd from *Abroad*, they should be sown in the full Ground in the Spring of the Year; where, sometimes, they will remain a Year before the Plants come up: so that if they do not come up the same Year, the Ground should not be disturb'd, but kept clean from Weeds, and wait till the second Year to see what Plants will come up. When the Plants appear, they must be kept clean from Weeds; and if the Season should prove dry, they will require to be frequently water'd. In the Autumn the Plants should be transplanted into the Places where they are to remain.

These Plants will live Years, and may be propagated by Off-sets; but these are not produced in Plenty: so that the best Method is by Seeds, when they can be procur'd.

TEUCRIUM, Tree-germander.

The Characters are;

The Flower-cup is divided into five Parts at the Top; but is of the bell-shaped Kind: the Flower has no Galea or Crest; but, instead thereof, the Stamina occupy the upper Part: the Beard, or Lower-lip, is cut into five Parts: the middle Segment, being larger, is hollow'd like a Spoon: in the Centre of the Flower rises the Pointal, attended by four Embryoes, which afterward become so many Seeds, shut up in an Husk, which was before the Flower-cup: to these Notes should be added, The Flowers are produced from the Wings of the Leaves.

The Species are;

1. TEUCRIUM *multis*. J. B. Common Tree-germander.

2. TEUCRIUM *Baticum*. Clus. Hist. Spanish Tree-germander.

3. TEUCRIUM *Baticum*, calyce campanulato, folio eleganter varie-

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gato. Boerb. Ind. Spanish Tree-germander, with a striped Leaf.

4. TEUCRIUM *Hispanicum*, latiore folio. Inst. R. H. Spanish Tree-germander, with a broader Leaf.

5. TEUCRIUM *supinum* perenne, foliis laciniatis. Inst. R. H. Low perennial Germander, with jagged Leaves.

6. TEUCRIUM *supinum* annuum Lusitanicum, foliis laciniatis. Inst. R. H. Low annual Portugal Germander, with jagged Leaves.

7. TEUCRIUM *frutescens*, stæchadis Arabicæ folio & facie. Tourn. Cor. Shrubby Germander, with the Leaf and Face of Arabian Stæchas.

8. TEUCRIUM *Orientale latifolium* laciniatum, flore parvo. Tourn. Cor. Broad jagged-leav'd Eastern Germander, with a small Flower.

9. TEUCRIUM *Orientale angustifolium* laciniatum, flore magno suaverubente. Tourn. Cor. Narrow jagged-leav'd Eastern Germander, with a large soft-red Flower.

10. TEUCRIUM *Orientale angustifolium* laciniatum, flore magno subcæruleo. Tourn. Cor. Narrow jagged-leav'd Eastern Germander, with a large blue Flower.

11. TEUCRIUM *Hispanicum supinum humilius*, verbenæ tenuifoliæ foliis. Jussieu. Low-trailing Spanish Germander, with Leaves like the narrow-leav'd Vervain.

12. TEUCRIUM *Creticum odoratum*, flore purpureo. H. R. Par. Sweet Germander of Crete, with a purple Flower.

13. TEUCRIUM *Americanum*, halicabos & alopecuroides. Plum. Cat. American Tree-germander, with a bladder Seed-vessel like the Winter-cherry, and spiked like the Fox-tail.

14. TEUCRIUM *Americanum*, chamædryos folio, flore albo. Houst. American Tree-germander, with a common Germander-leaf, and a white Flower.

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The first Sort here mentioned was formerly preserv'd in Green-houses with great Care; but of late Years it hath been planted out into the open Air, and is found hardy enough to endure the Cold of our severest Winters without Shelter, provided it be planted on a dry Soil.

This may be propagated by planting Cuttings in the Spring, on a Bed of fresh light Earth, observing to shade and water them until they have taken Root; after which they will require no farther Care, but to keep them clear from Weeds, until the following Spring; when they may be transplanted out into the Places where they are to remain, being careful in removing them not to shake off all the Earth from their Roots, as also to water them until they have taken fresh Root; after which the only Care they require, is to keep the Ground clean about them, and to prune off such Shoots as are ill situated; whereby their Heads will appear more regular.

It may also be propagated by Seeds, which generally are produc'd in Plenty: if these are sown upon a Bed of light Earth in *April*, the Plants will come up in six Weeks after; and these may be transplanted in Autumn, where they are design'd to remain.

The *Spanish* Sort is tenderer than the former, tho' that will endure the Cold of our ordinary Winters, if planted on a dry Soil, and in a warm Situation; but in a severe hard Frost it is often destroyed; for which Reason the Plants are generally preserv'd in Pots, and removed into the Green-house in Winter. This is propagated in the same manner as the former.

The Sort with striped Leaves is less common than the plain, and is valued by those that delight in variegated Plants. This is somewhat tenderer than the plain Sort; but

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may be propagated and preserved in the same manner, only observing to place it in a warmer Part of the Green-house in Winter.

The fourth Sort here mention'd is very like to the *Batic* Tree-germander; from which it differs in the Leaves being broader, the Shoots stronger, and the young Shoots being whiter. This Sort may be propagated by Cuttings, in the same manner as hath been directed for that Sort, and afterwards treated in the same Way.

The seventh and twelfth Sorts are also shrubby Plants, which may be propagated and treated in the same manner as hath been directed for the fourth; with which Management these will thrive very well, and may be allowed to have a Place in the Gardens, for the sake of Variety.

The fifth Sort is a low-trailing Plant, which puts out Roots from the Joints of the Stalks, whereby it may easily be propagated, as also from the Seeds, which require no farther Care, than to sow them on a Bed of fresh Earth, in an open Situation; and when the Plants are come up, they must be kept clear from Weeds; and where they are too close, some of them should be drawn out, to give room for the others to grow. This Sort will ripen Seeds very well in this Country; and, if planted in a warm Situation, will endure the Cold of our ordinary Winters very well.

The sixth, eighth, ninth, and eleventh Sorts are annual Plants, of humble Growth. These are propagated by Seeds, which should be sown on a Bed of fresh Earth in *March*; and when the Plants are come up, they must be thinned where they are too close, and kept clear from Weeds, which is all the Culture they require; for as they are Plants which make no great

Figure in a Garden, so they are seldom cultivated: a few Plants of each Sort, for the sake of Variety, are as many as any curious Person commonly keeps. These Plants will drop their Seeds, and the Plants will come up from the self-sown Seeds, full as well, if not better, than when they are sown by Hand; so may be easily maintained.

The thirteenth Sort was discover'd by Father Plumier, in the French Settlements in America; and the fourteenth was discovered by the late Dr. Houshoun, at the Havannah; from whence he brought the Seeds to England. These are both very tender Plants, so must be preserved in a Stove, otherwise they will not live thro' the Winter in this Country. They may be propagated by Seeds, which should be sown on a moderate Hot-bed in the Spring; and when the Plants are come up, they should be each transplanted in a separate small Pot fill'd with fresh light Earth, and then plunged into a moderate Hot-bed of Tanners Bark, and shaded from the Sun in the Heat of the Day, until they have taken new Root; after which time they should have a large Share of free Air admitted to them in warm Weather, and must be plentifully watered. When these Plants are brought forward early in the Spring, some of them will produce their Flowers the same Season; but they rarely produce ripe Seeds the first Year; so the Plants should be removed into the Stove at Michaelmas, and, during the Winter-season, should have a moderate Share of Heat, and will require to be frequently refreshed with Water; but it must not be given to them in large Quantities when the Weather is cold; for that will often occasion their Leaves falling off. These Plants, which are preserved through the Winter, will

flower early the following Spring, and produce good Seeds; and the old Plants may be preserved three or four Years, if they are constantly kept in a Stove.

THALICTRUM, Meadow-rue.

The Characters are;

The Flower consists of several Leaves plac'd orbicularly, which expand in form of a Rose; in the Middle of which arise numerous Clusters of Chives, encompassing the Pointal, which afterward becomes a Fruit; in which are collected, as in a little Head, the Capsules, which are sometimes wing'd, and sometimes without Wings, each containing one Seed, for the most part oblong.

The Species are;

1. THALICTRUM *Alpinum*, *aquilegiæ foliis, florum staminibus purpurascens*. Tourn. Alpine Meadow-rue, with Columbine-leaves, and the Chives of the Flowers of a purplish Colour, commonly called the feather'd Columbine.

2. THALICTRUM *Alpinum majus, aquilegiæ foliis, florum staminibus albis, caule viridi*. Tourn. Greater Alpine Meadow-rue, with Columbine-leaves, white Chives to the Flowers, and a green Stalk.

3. THALICTRUM *Canadense, caule purpurascens, aquilegiæ foliis, florum staminibus albis*. Tourn. Canada Meadow-rue, with a purplish Stalk, Columbine-leaves, and white Chives to the Flower.

4. THALICTRUM *Americanum minus*. Park. Theat. Lesser American Meadow-rue.

5. THALICTRUM *majus, filiqua angulosa aut striata*. C. B. P. Greater Meadow-rue, with an angular furrow'd Pod.

6. THALICTRUM *pratense majus, Monspeliensium, foliis rugosis*. H. R. Par. Greater Montpellier Meadow-rue, with rough Leaves.

7. THALICTRUM *majus, non striatum*.

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tum. C. B. P. Greater smooth Meadow-rue.

8. *THALICTRUM majus flavum, flaminibus luteis, vel glauco folio.* C. B. P. Greater yellow Meadow-rue, with yellow Chives, and a sea-green Leaf.

9. *THALICTRUM magnum, flore luteo odorato. Vir. Lusif.* Greater Meadow-rue, with a yellow sweet Flower.

10. *THALICTRUM minus, asphodeli radice, parvo flore. Inst. R. H.* Smaller Meadow-rue, with an Asphodel-root, and a small Flower.

11. *THALICTRUM minus, asphodeli radice, magno flore. Inst. R. H.* Smaller Meadow-rue, with an Asphodel-root, and a large Flower.

12. *THALICTRUM minus.* C. B. P. Smaller Meadow-rue.

13. *THALICTRUM pratense angustifolium.* C. B. P. Narrow-leav'd Meadow-rue.

14. *THALICTRUM pratense, angustissimo folio.* C. B. P. The narrowest-leav'd Meadow-rue.

15. *THALICTRUM minus alterum Parisiense, foliis crassioribus & lucidis.* H. R. Par. Another small Meadow-rue of Paris, with thicker shining Leaves.

16. *THALICTRUM minimum foetidissimum.* C. B. P. The least and most stinking Meadow-rue.

17. *THALICTRUM montanum minus, foliis latioribus.* Raii Syn. Small mountain Meadow-rue, with broader Leaves.

18. *THALICTRUM minimum montanum atro-rubens, foliis splendidibus.* Raii Syn. Smallest mountain Meadow-rue, with blackish-red shining Leaves.

All these Sorts are commonly known by the Name of Feather'd or Spanish Columbine among the Gardeners; which Names, I suppose, they received from the Similitude

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that the Leaves of this Plant bear to those of Columbine, tho' their Flowers are very different therefrom.

The fifth Sort here mention'd grows plentifully in moist Meadows, in divers Parts of England. The sixth Sort is found growing wild about Newmarket, and on chalky Grounds in several Parts of England. The seventeenth and eighteenth Sorts grow wild on the rocky Mountains of Wales; from whence they have been transplanted into some curious Gardens, where they are preserved for the sake of Variety.

The other Sorts are not Natives of England; yet being equally hardy with the former, will thrive in the open Air very well. Most of these Plants have creeping Roots, by which they spread very far, and may be easily propagated; but they should not be planted amongst other Plants, because these will overbear and destroy them. These Plants should be planted in a moist Soil, otherwise they will not flower very strong. The best time to transplant them is about Michaelmas, that they may be well rooted before the dry Weather comes on in the Spring.

The fifth, sixth, seventh, eighth, thirteenth, and fourteenth Sorts are tall Plants, and may be planted among other Plants of the same Growth, which delight in a moist Soil, in some obscure Part of the Garden, where better Things will not thrive; in which Places these will thrive and flower, and maintain themselves without any other Care, but to keep them clear from very large Weeds, which would overbear and destroy them.

The other Sorts are of humble Growth, some of them seldom rising above six Inches high, and the others not more than a Foot; but these may be planted in shady Borders with

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with other hardy Plants, where they will thrive very well, provided they are watered in dry Weather, and will abide several Years. All these Sorts will flower in *May* and *June*, and their Seeds are ripe toward the End of *August*: but as these propagate so fast by their Roots, they are rarely raised from Seeds, which is a more tedious Method; for it is commonly three Years before the Seedling-plants produce their Flowers so strong as the old ones.

These Plants are propagated by parting their Roots: the best time for this Work is in *September*, when their Leaves begin to decay, that they may take fresh Root before the Frost comes on to prevent them. They should also be planted in a fresh light Soil, and have a shady Situation, in which they will thrive exceedingly; though they may be planted in almost any Soil or Situation, provided it be not too hot and dry. These Roots should not be parted or removed oftener than every other Year; but if they are permitted to stand three Years, they will flower much stronger for it.

These Plants flower from the Beginning of *May* to the Beginning of *June*; and if the Season be moderate, they will continue in Beauty a long time: this, together with their being hardy Plants, which require little Culture, renders some of the best Kinds worthy of a Place in every good Flower-garden; as their Flowers are very proper to intermix with others, for Basons to adorn Halls, Chimneys, &c. in the Summer-time.

THAPSIA, The Deadly Carrot, or scorching Fenel.

The Characters are;

It hath an umbellated rose-shaped Flower, consisting of five Petals, which are placed in a circular Order,

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and rest on the Empalement; which afterward becomes a Fruit, composed of two long furrowed Seeds, which have a large leafy Border.

The Species are;

1. THAPSIA maxima, latissimo folio. C. B. P. The greatest Scorching-fenel, with a very broad Leaf.

2. THAPSIA latifolia villosa. C. B. P. Broad-leav'd hairy Scorching-fenel.

3. THAPSIA foliis libanotidis, fætidissima. C. B. P. The most stinking Scorching-fenel, with Herb-frankincense-leaves.

4. THAPSIA apii folio, Lusitanica fætidissima, flore albo. Inst. R. H. The most stinking Portugal Scorching-fenel, with a Smallage-leaf, and a white Flower.

5. THAPSIA tenuiore folio, Apula. Inst. R. H. Apulian Scorching fenel, with a narrow Leaf.

6. THAPSIA five Turbith Garganicum, semine latissimo. J. B. Scorching-fenel with very broad Seeds, whose Roots were supposed to be the Turbith.

7. THAPSIA Alpina lucida, thalictri aut carotæ folio, flore albo. Bocc. Mus. Shining Scorching-fenel of the Alps, with a Meadow-rue or Carrot-leaf, and a white Flower.

8. THAPSIA thalictri folio, Lusitanica villosa. Inst. R. H. Hairy Portugal Scorching-fenel, with a Meadow-rue-leaf.

9. THAPSIA Orientalis, anethi folio, semine eleganter crenato. Tourn. Cor. Eastern Scorching-fenel, with a Dill-leaf, and Seeds beautifully notched.

10. THAPSIA Orientalis aquatica, angelicæ folio. Tourn. Cor. Eastern Water Scorching-fenel, with an Angelica-leaf.

11. THAPSIA Cretica, thalictri folio, villosa, seminum alis purpureo-violaceis. Tourn. Cor. Hairy Scorching-

ing-fenel of *Crete*, with a Meadow-rue-leaf, and Seeds with purple-violet Borders.

12. *THAPSIA carotæ folio. C.B.P.*
Scorching-fenel with a Carrot-leaf.

The first Sort grows plentifully in several Parts of *Spain*, and on the *Pyrenees*, where the Inhabitants sometimes use the Roots in Medicine; but it purges upward and downward with so much Violence, that it frequently puts those who take it in great Hazard of their Lives.

The sixth Sort, whose Roots have by some Botanists been supposed to be the Turbith of the Shops, grows on the Coast of *Africa*; from whence the Seeds have been brought into several curious Gardens in *Europe*, where the Plant is preserved by those who delight in Botany.

The twelfth Sort is mention'd in the Catalogue of Plants inserted in the College Dispensatory, but is rarely used in Medicine; for it is of such an acrid burning Quality, that it is very dangerous to take inwardly; but, outwardly applied, it takes off Blemishes and Scabs from the Skin.

All these Plants are very hardy as to Cold; so that they will thrive in the open Air in this Country: they should have a loamy Soil, and in dry Weather should be watered, otherwise their Flowers will fall off, without producing good Seeds. These Plants are only propagated by Seeds, which should be sown in Autumn; for if they are kept out of the Ground till Spring, they often miscarry; or if they grow, they commonly lie in Earth a whole Year before the Plants come up; whereas those Seeds which are sown in Autumn, generally grow the following Spring. These should be sown in Drills, in the Place where they are designed to remain: the Drills should be at least two Feet

asunder, because the Plants spread their Leaves very wide. When the Plants come up in Spring, they must be carefully clear'd from Weeds; and where they are too close together, some of them should be drawn out, to give room for the others to grow; but at this time they need not be left more than two or three Inches apart: for the first Year the Plants arise from Seeds, they make but slow Progress; so the Autumn following the remaining Part of the Plants may be taken up, leaving those which are design'd to remain, about eighteen Inches asunder; and those Plants which are taken up, may be transplanted into another Bed, if they are wanted. After the first Year these Plants will require no farther Care but to keep them clear from Weeds; and every Spring, just before the Plants begin to push out new Leaves, the Ground should be carefully dug between the Plants, to loosen it; but the Roots must not be injured, lest it should cause them to decay. The Plants, being thus managed, will continue several Years, and produce Flowers and Seeds annually; from which new Plants may be raised.

THLASPI, Mithridate-mustard.

The Characters are;

The Flower consists of four Leaves, which are placed in form of a Cross; out of whose Cup rises the Pointal, which afterward becomes a smooth annular Fruit, having commonly a leafy Border, and slit on the upper Side, divided into two Cells by an intermediate Partition placed obliquely with respect to the Valves, and furnish'd with smooth roundish Seeds: to these Marks must be added, The undivided Leaves, which distinguish it from Cresses.

The Species are;

1. *THLASPI arvense, siliquis latis.*

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latius. C. B. P. Field Mithridate-mustard, with broad Pods.

2. *THLASPI rosa de Hierico distum*. Mor. Hist. Mithridate-mustard, call'd The Rose of Jericho.

3. *THLASPI arvense, vaccariæ incano folio*. C. B. P. Common Mithridate-mustard.

4. *THLASPI vaccariæ incano folio, minus*. C. B. P. Small hoary-leav'd Mithridate-mustard.

5. *THLASPI capsulis hirsutis*. J. B. Mithridate-mustard with hairy Pods.

6. *THLASPI capsula cordata, peregrinum*. J. B. Foreign Mithridate-mustard, with an heart-shap'd Pod.

7. *THLASPI allium redolens*. Mor. Hist. Mithridate-mustard smelling like Garlick.

8. *THLASPI arvense perfoliatum majus*. C. B. P. Greater field Mithridate-mustard, with Thorough-wax-leaves.

9. *THLASPI perfoliatum minus*. C. B. P. Smaller thorough-wax-leav'd Mithridate-mustard.

10. *THLASPI parvum saxatile, flore rubente*. C. B. P. Small rock Mithridate-mustard, with a redish Flower.

11. *THLASPI Alpinum, folio rotundiore carnosio, flore purpurecente*. Inst. R. H. Mithridate-mustard, of the Alps, with a rounder fleshy Leaf, and a purplish Flower.

12. *THLASPI minimum Lusitanicum, cochleariæ folio*. Inst. R. H. The least Portugal Mithridate-mustard, with a Scurvygrass-leaf.

13. *THLASPI Alpinum minimum, foliis crassis & angustis*. Inst. R. H. The least Mithridate-mustard of the Alps, with narrow fleshy Leaves.

14. *THLASPI Lusitanicum umbellatum, gramineo folio, flore purpurecente & albo*. Inst. R. H. Portugal Mithridate-mustard, with a Grass-leaf, and purplish or white Flowers growing in an Umbel.

15. *THLASPI Orientale saxatile,*

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flore rubente, foliis polygalæ, petalis florum æqualibus. Tourn. Cor. Eastern rock Mithridate-mustard, with Milkwort-leaves, and redish Flowers, whose Petals are equal.

16. *THLASPI Orientale tenuifolium canescens, flore albo*. Tourn. Cor. Eastern Mithridate-mustard, with narrow Leaves, which are hoary, and a white Flower.

17. *THLASPI Orientale glabrum, samoli foliis*. Tourn. Cor. Smooth Eastern Mithridate-mustard, with Samolus-leaves.

18. *THLASPI Orientale, folio cynocrambes, flore minimo*. Tourn. Cor. Eastern Mithridate-mustard, with a Dogs-mercury-leaf, and a very small Flower.

19. *THLASPI Orientale fruticosum, scammonii Monspeliensis folio*. Tourn. Cor. Shrubby Eastern Mithridate-mustard, with the Leaf of Montpellier Scammony.

20. *THLASPI foliis globulariæ*. J. B. Treacle-mustard with Leaves like Globularia.

21. *THLASPI spicatum Persicum perfoliatum maximum, foliis inferioribus tenuiter incisus hypecoi modo, superioribus a caule perfoliatæ modo penetratis*. Mor. Hist. Spiked Persian Treacle-mustard, with the under Leaves finely cut like those of Hypecoum, and the upper Leaves like Thorough-wax.

The first Sort is sometimes found wild in England: but not near London. This is the Sort of which the College of Physicians have order'd the Seeds to be us'd in some of the grand Medicines of the Shops; though the Seeds of several other Plants are commonly substituted instead of it, because the Seeds of this Sort are not very common in London; but the Plants might be easily cultivated in such Plenty, as to furnish the Town with the right Sort, as they

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they are extreme hardy, and require no other Culture but to sow the Seeds in *February*, upon an open Spot of Ground ; and when the Plants are come up, they must be constantly clear'd from Weeds. In *June* they will flower, and the Seeds will ripen soon after; when the Plants always perish, being annual.

The second Sort is called *Rose of Jericho*: this is a Plant of no great Beauty or Use ; so is seldom cultivated, except in Botanic Gardens. It requires the same Culture as the former Sort, and is also an annual Plant ; but the Seeds rarely ripen in *England*.

The third Sort grows plentifully wild amongst the Corn, and by the Sides of Hedges, in most Parts of *England*. The Seeds of this Sort are generally sold by the Druggists in *London*, for the true Mithridate-mustard ; but the first Sort is what the College of Physicians have directed to be us'd in the *Theriaca*.

The fourth, eighth, ninth, and twentieth Sorts also grow wild in some Parts of *Great Britain* ; but are not so common as the former Sorts, especially the twentieth, which is found in the mountainous Pastures in *Yorkshire*, and some other Places in the North ; but is not to be met with in the South, unless in some curious Botanic Gardens ; where it is preserv'd for the sake of Variety.

The tenth, eleventh, twelfth, thirteenth, and fourteenth Sorts are found wild on the *Alps*, and in *Spain*, *Portugal*, and *Italy*: these are preserv'd in the Gardens of those Persons who are curious in Botany, for the sake of Variety.

The fifteenth, sixteenth, seventeenth, eighteenth and nineteenth Sort, were discovered by Dr. *Tournefort* in the *Levant*, from whence he sent their Seeds to the *Royal Garden at Paris*.

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Most of these Sorts are annual Plants, which, if permitted to shed their Seeds on the Ground, will succeed much better than when sown by Hand, especially if they are not sown in Autumn ; for when the Seeds are sown in the Spring, if the Season should prove dry, they seldom grow ; and if they do come up, the Plants will be very small, and produce little Seed : whereas those Plants which come up in Autumn, will abide the Winter's Cold very well, and the following Spring will get Strength before the hot Weather comes in ; so will flower, and produce plenty of Seeds.

Some of these Sorts produce pretty Flowers growing in Clusters, which renders them worthy of a Place in large Gardens, where there is room for Variety, especially as they require very little Trouble to cultivate them : for none of these Sorts should be transplanted, but sown where they are design'd to remain ; and if they are kept clear from Weeds, it is all the Culture they require. Many of these Plants will grow on the Top of old Walls, or other Buildings ; where they will shed their Seeds, and maintain themselves without Care ; and growing very low and stunted, will produce a great Number of Flowers ; which will make a pretty Appearance in the Spring, when they are in Flower.

The nineteenth Sort grows to the Height of two Feet or more, and becomes shrubby. The Flowers of this Kind are small, and do not make a very good Appearance ; but the Plant is preserv'd by some curious Persons, for the sake of Variety. This Sort may be propagated by Cuttings during any of the Summer-months, in like manner as the Candy-tuft-tree ; but is somewhat tenderer ; and, when it is rooted, should
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be planted in Pots, and shelter'd in Winter, in the same manner as hath been directed for that Sort; for which see *Iberis*.

The twenty-first Sort is generally supposed to be the first *Thlaspi* of *Dioscorides*, the Seeds of which he prescribes for medicinal Use: the lower Leaves of this Plant are cut into very fine Segments, so as at the first Appearance to resemble the wild Camomile; but when the Stems arise they are garnished with oval intire Leaves, which embrace them like the Thorough-wax, to which they bear a great Resemblance.

This is an annual Plant, which perishes when the Seeds are ripe; and if the Seeds are permitted to scatter, the Plants will come up in Autumn, and live thro' the Winter; or the Seeds should be sown in Autumn; for those which are sown in Spring, do seldom live to perfect Seeds.

THLASPIDIUM, Mithridate-mustard.

The Characters are;

The Flower consists of four Leaves, which are placed in form of a Cross; out of whose Cup rises the Pointal, which afterward becomes a double smooth Fruit, composed of two Parts, that are separated by an intermediate Partition; each of which swells with a red Seed, which is generally flat and oblong.

The Species are;

1. **THLASPIDIUM** *Monspeliense, hieracii folio hirsuto.* *Inst. R. H.* Montpellier Thlaspidium, with an hairy Hawkweed-leaf.

2. **THLASPIDIUM** *hirsutum, calyce floris auriculato.* *Inst. R. H.* Hairy Thlaspidium, with an eared Flower-cup.

3. **THLASPIDIUM** *annuum, flore pallide luteo.* *Inst. R. H.* Annual

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Thlaspidium, with a pale yellow Flower.

4. **THLASPIDIUM** *raphani folio.* *Inst. R. H.* Radish-leav'd Thlaspidium.

5. **THLASPIDIUM** *anchusæ folio.* *Inst. R. H.* Alkanet-leav'd Thlaspidium.

6. **THLASPIDIUM** *Apulum spicatum.* *Inst. R. H.* Spiked Thlaspidium of *Apulia*.

7. **THLASPIDIUM** *montanum angustifolium glabrum.* *Inst. R. H.* Smooth narrow-leav'd mountain Thlaspidium.

8. **THLASPIDIUM** *Alpinum pumilum asperum.* *Inst. R. H.* Low rough Thlaspidium of the *Alps*.

9. **THLASPIDIUM** *Apulum incanum, floribus ex albo purpurascen- tibus.* *Inst. R. H.* Hoary Thlaspidium of *Apulia*, with white purplish Flowers.

10. **THLASPIDIUM** *Hispanicum, ampliore flore, folio crasso dentato.* *Hort. Elth.* Spanish Thlaspidium, with a large Flower, and a thick indented Leaf.

All the Sorts are annual or biennial Plants (except the last), which perish soon after they have perfected their Seeds. These are Plants of no great Beauty; so are rarely cultivated, except in the Gardens of those who are curious in Botany. If the Seeds of these are sown upon a Bed of light Earth in the Autumn, the Plants will abide the Winter, and will flower strong the following Spring; and from these a much greater Quantity of Seeds may be sav'd.

The last Sort is a perennial Plant, which at present is very rare in *England*: this produces Flowers much larger than those of the Candy tuft-tree, which makes a fine Appearance in the Winter-season. This Sort must

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must be treated in the same manner as the Candy-tuft-tree, and is propagated by Cuttings in the same way.

THISTLE. *Vide* Carduus.

THORN-APPLE. *Vide* Stramonium.

THORN, the *Glaftenbury*. *Vide* Mespilus.

THUYA, The Arbor Vitæ, *vulgo*.

The Characters are ;

The Leaves are ever-green, and compress'd, having small oblong squamous Cones on the Back-sides, in which the Seeds are contain'd.

The Species are ;

1. THUYA *Theophrasti*. C. B. P. The Arbor Vitæ, or Tree of Life.

2. THUYA *Theophrasti*, *folio variegato*. The striped Arbor Vitæ, or Tree of Life.

3. THUYA *strobilis uncinatis, squamis reflexo-acuminatis*. Lin. Hort. Cliff. The China Arbor Vitæ.

The first Sort was formerly in greater Esteem than at present in the *English* Gardens : it was commonly rais'd in the Nurseries near London, where their Heads were shear'd into a conical Figure. But since that low Taste of Gardening, in croud-ing vast Quantities of clipp'd Plants into Gardens, is justly exploded, these Trees do not meet with so good Reception as formerly ; but notwithstanding this, there may be some of them planted in Gardens to great Advantage, if they are plac'd in Wildernesses, or Clumps of ever-green Trees, where these should be planted with other Sorts which are nearly of the same Growth : and in such Plantations, the dull heavy green Colour of these Leaves will be very useful in adding to the Lustre of those which are of a more lively Green, and make a fine Variety.

The striped Sort is preserv'd by the Curious in collecting such Varieties ; but has little Beauty.

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The China Arbor Vitæ hath not been long in *Europe* : the Cones of this same Tree were sent from China by some of the *French* Missionaries ; and since this Sort has been introduc'd into the *English* Gardens, it has been greatly propagated by Layers and Cuttings ; but the Seeds seldom ripen here.

The Leaves of this Tree are of a beautiful green Colour, and the Branches are well cloath'd with them ; so that it makes a fine Appearance when intermix'd with other ever-green Trees. This Tree, although a Native of China, is extremely hardy, and will endure the greatest Cold of this Country in the open Air ; which renders it more valuable.

It will grow to the Height of twenty Feet, or upward, and is generally furnish'd with Branches all the Length of the Stem ; so that it deserves to be rang'd in the first Class of ever-green Trees for Beauty.

These Trees may be propagated by laying down their tender Branches in Autumn ; observing to slit them at a Joint (as is commonly practis'd for Carnations), as also to water them in dry Weather, and keep them constantly clear from Weeds. If these Things be duly observ'd, the Layers will be rooted in two Years ; by which time they may be taken off, and transplanted into a Nursery in Rows three Feet asunder, and the Plants eighteen Inches Distance in the Rows ; observing to lay a little Mulch upon the Surface of the Ground about their Roots, to prevent the Wind from drying it ; and in dry Weather they should be often refresh'd with Water, until they have taken Root ; after which they must be constantly kept clear from Weeds, and the Ground dug every Spring between the Rows, that their Roots may

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may extend themselves on every Side. In this Nursery they may remain five or six Years, and may then be transplanted where they are to remain for good. The best Season to remove these Trees is about the End of *September*, or Beginning of *April*, just before they shoot.

These Trees may also be propagated by Slips, which should be planted on a moist Soil in Autumn; and if shaded in very hot dry Weather, most of them will take Root; after which they must be treated as hath been directed for the Layers.

The Leaves of the common Sort, being bruised between the Fingers, emit a strong Scent, somewhat like Ointment; and I have been informed, that some Persons make an Ointment thereof, which is esteem'd excellent for fresh Wounds.

THYMBRA.

The Characters are:

It hath a labiated Flower, like those of the Savory, Thyme, and Calamint; from which this Plant differs in having its Flowers growing in Whorles.

The Species are;

1. THYMBRA *legitima*. *Clus. Hist.*
The true Thymbra of *Clusius*.

2. THYMBRA *Hispanica, coridis folio*. *Inst. R. H. Spanisb* Thymbra, with a fair Heath-pine-leaf.

3. THYMBRA *Sancti Juliani, sive Satureia vera*. *Lob. Icon.* Thymbra of Mount Saint Julian, or the true Savory of *Lobel*.

The first Sort rises about two Feet high, and hath a woody Stem, and divides into many Branches, so as to form a small Bush. The Leaves of this Plant are somewhat like those of Savory, and have a strong aromatic Scent when bruised. This Sort grows plentifully in several Islands of the *Archipelago*; from whence the Seeds were sent to several curious

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Persons, who cultivate it for the sake of Variety. This Kind may be propagated by Cuttings, which should be planted in the Beginning of *April*, on a Border, where they may have only the morning Sun; and in dry Weather they must be constantly water'd, until they have taken good Root; after which time, they will require no farther Care, but to keep them clear from Weeds till *Michaelmas*; at which time the Plants should be carefully taken up, and transplanted; some of them into Pots, that they may be shelter'd in Winter; and the others on a dry lean Soil in a warm Situation, where they will endure the Cold of our ordinary Winters very well; but in severe Winters they are frequently destroyed: therefore it is proper to preserve two or three Plants in Pots under Shelter, lest those in the open Air should be kill'd.

The second Sort was discover'd by Dr. *Tournefort* in *Castile*, where it grew plentifully on stony Ground. This is a low ever-green bushy Plant somewhat like Thyme; but the Leaves are broader, and the whole Plant has a more dull and somewhat fetid Smell. This may be propagated by Seeds, or by Cuttings, as the former Sort; and should be treated in the same manner.

The third Sort grows in several Places in *Italy* and *Sicily*, commonly on stony Land, or on old Walls: this is a low Plant, seldom rising above six Inches high, sending forth many upright Branches from the Root, which have Spikes of small Flowers, growing in Whorles on their Tops. This Sort is propagated by Seeds, which should be sown on a light lean Soil; and when the Plants are strong enough to transplant, some of them should be planted in Pots to be shelter'd in Winter; and the others may

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may remain where they were sown, observing to keep them clear from Weeds, which is all the Culture they require. This Sort seldom continues longer than two or three Years; so that Seeds should be sown every other Season to raise a Supply of young Plants.

These Plants are suppos'd to have the same Virtues as Savory, to which they are nearly ally'd.

Most of the aromatic verticillate Plants will endure the Cold of the most severe Winters in England, provided they grow on rocky stony dry Ground, where they will be short and stunted; and are also much stronger scented, than when they are sown or planted on a richer Soil; nay, most of them will grow on old Walls and Buildings, where they will root into the Joints between the Stones or Bricks; and though they are expos'd to the severest Winds, yet will they resist the Cold, when the Plants of the same Kinds, which are in the warmest Situations of the Garden, are intirely destroy'd. Of this there have been several Instances within the Memory of some Persons now living; when all the Rosemary, and many other of the like aromatic Herbs, have been destroy'd in the Gardens; when some few Plants, which were growing on old Walls, have escap'd; whereby their Species have been preserved in England.

THYMELÆA, Spurge-laurel, or Mezereon.

The Characters are;

The Flower consists of one Leaf; is, for the most part, funnel-shap'd, and cut into four Segments; from whose Centre rises the Pointal, which afterward becomes an oval Fruit, which is in some full of Juice, but in others is dry, in each of which is contain'd one oblong Seed.

The Species are;

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1. THYMELÆA *laurifolia semper-virens, seu laureola mas.* Tourn. The Spurge or Dwarf-laurel.

2. THYMELÆA *laurifolia semper-virens, foliis variegatis.* The striped Spurge-laurel.

3. THYMELÆA *lauri folio deciduo, sive laureola fœmina.* Tourn. The common Mezereon.

4. THYMELÆA *lauri folio deciduo, flore albedo, fructu flavescente.* Tourn. The Mezereon with white Flowers, and yellowish Fruit.

5. THYMELÆA *lauri folio deciduo, flore rubro.* The Mezereon with red Flowers.

6. THYMELÆA *lauri folio deciduo, foliis ex luteo variegatis.* The common Mezereon, with striped Leaves.

7. THYMELÆA *foliis lini.* C.B.P. Spurge-olive, or Laurel with Flax-leaves.

8. THYMELÆA *Alpina latifolia humilior, flore purpureo odoratissimo.* Inst. R. H. Dwarf Spurge-laurel of the Alps, with a Flax-leaf, and a very sweet purple Flower.

9. THYMELÆA *Alpina latifolia humilior, flore albo odoratissimo.* Inst. R. H. Dwarf Spurge-laurel of the Alps, with a Flax-leaf, and a very sweet white Flower.

10. THYMELÆA *villosa minor Lusitanica, polygoni folio.* Inst. R. H. Smaller hairy Portugal Spurge-laurel, with a Knot-grass-leaf.

11. THYMELÆA *linariæ folio, vulgaris.* Inst. R. H. Common Spurge-laurel, with a Toad-flax-leaf.

12. THYMELÆA *linariæ folio, Hispanica.* Inst. R. H. Spanish Spurge-laurel, with a Toad-flax-leaf.

13. THYMELÆA *latifolia Hispanica, oleæ foliis.* Inst. R. H. Broad-leav'd Spanish Spurge laurel, with Olive-leaves.

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14. *THYMELÆA argentea* Italian, *oleæ foliis*. Inst. R. H. Silver Italian Spurge-laurel, with Olive-leaves.

15. *THYMELÆA saxatilis*, *oleæ folio*. Inst. R. H. Rocky Spurge-laurel, with an Olive-leaf.

16. *THYMELÆA Alpina*, *folio utrinque incano*, *flore albo*. Inst. R. H. Alpine Spurge-laurel, with a Leaf hoary on both Sides, and a white Flower.

17. *THYMELÆA foliis polygalæ glabris*. C. B. P. Spurge-laurel with smooth Milkwort-leaves.

18. *THYMELÆA foliis polygalæ villosis*. Inst. R. H. Spurge-laurel with hairy Milkwort-leaves.

19. *THYMELÆA foliis chamelææ minoribus subhirsutis*. C. B. P. Spurge-laurel with smaller Widow-wail-leaves, which are somewhat hairy.

20. *THYMELÆA Hispanica*, *foliis myrti incanis*. Inst. R. H. Spanish Spurge-laurel, with hoary Myrtle-leaves.

21. *THYMELÆA Pyrenaica juniperifolia*, *ramulis surrectis*. Inst. R. H. Pyrenean Spurge-laurel, with a Juniper-leaf, and upright Branches.

22. *THYMELÆA foliis candicantibus*, *serici instar mollibus*. C. B. P. Spurge-laurel with whitish soft Leaves resembling Silk, commonly call'd Tarton-raire.

23. *THYMELÆA Cretica*, *oleæ folio subtus villoso*. Tourn. Cor. Spurge-laurel of Crete, with an Olive-leaf hairy underneath.

24. *THYMELÆA Cretica*, *oleæ folio utrinque glabro*. Tourn. Cor. Spurge-laurel of Crete, with an Olive-leaf smooth on both Sides.

25. *THYMELÆA Pontica*, *citri foliis*. Tourn. Cor. Pontic Spurge-laurel, with Citron-leaves.

26. *THYMELÆA Orientalis minima*, *laureolæ folio*, *floribus glomeratis*

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albis. Tourn. Cor. The least Eastern Spurge-olive, with the common Spurge-laurel-leaves, and white Flowers growing in Clusters.

27. *THYMELÆA Orientalis*, *buxi folio subtus villoso*, *flore albo*. Tourn. Cor. Eastern Spurge-laurel, with a Box-leaf hairy on the Under-side, and a white Flower.

28. *THYMELÆA Orientalis*, *salicis folio*, *flore albo odoratissimo*. Tourn. Cor. Eastern Spurge-laurel, with a Willow-leaf, and a white sweet-scented Flower.

29. *THYMELÆA linifoliæ similis*, *Africana*, *floribus pallidis odoratissimis*. Prod. Par. Bat. African Spurge-laurel like the seventh Sort, with pale sweet-scented Flowers.

30. *THYMELÆA linifoliæ similis*, *Africana*, *foliis lucidis*, *laticoribus*, & *obtusis*. Par. Bat. African Spurge-laurel, like the seventh Sort, with broader, shining, and obtuse Leaves.

31. *THYMELÆA Africana*, *foliis lini*, *floribus in capitulum congestis*. Oldenl. African Spurge-laurel, with Flax-leaves, and Flowers collected in Heads.

32. *THYMELÆA Africana*, *rosmarini folio angustissimo breviori*. Oldenl. African Spurge-laurel, with a very narrow and shorter Rosmary-leaf.

33. *THYMELÆA Africana*, *rosmarini folio angustissimo longiori*. Oldenl. African Spurge-laurel, with a very narrow and longer Rosmary-leaf.

34. *THYMELÆA Africana*, *rosmarini folio*, *floribus longioribus*. Oldenl. African Spurge-laurel, with a Rosmary-leaf, and longer Flowers.

35. *THYMELÆA Africana*, *sanamundæ facie*, *ericæ foliis angustissimis*. Prod. Par. Bat. African Spurge-laurel, with the Face of Sanamunda, and very narrow Heath-leaves.

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36. *THYMELÆA Africana, tarton-raire similis, floribus in capitulum congestis.* Oldenl. African Spurge-laurel, like the Tarton-raire, with Flowers collected in an Head.

37. *THYMELÆA Africana, foliis rufci.* Oldenl. African Spurge-laurel, with Butchers-broom-leaves.

38. *THYMELÆA Africana frutescens, jasmini flore, foliis polygalæ.* Oldenl. African shrubby Spurge-laurel, with a Jasmine-flower, and Leaves of Milkwort.

39. *THYMELÆA Capensis, nepæ Theophrasti foliis aculeatis, flore parvo purpureo.* Pluk. Phyt. Spurge-laurel of the Cape of Good Hope, with prickly Furz-leaves, and a small purple Flower.

40. *THYMELÆA Americana frutescens, rosmarini folio, flore albo.* Plum. Shrubby American Spurge-laurel, with a Rosmary-leaf, and a white Flower.

The first of these Plants is found wild in Woods, and other shady Places, in divers Parts of England; but is often cultivated in Gardens for Variety; where, if it is planted in Wildernesses, or shady Walks, it will thrive very well; and being an Ever-green, and producing its Flowers in Winter, when few other Plants flower, makes it more acceptable. The second Sort is a Variety of the first, which is preserv'd for the Beauty of its striped Leaves.

Both these Plants may be propagated by Suckers taken from the old Plants, or by Layers; which should be taken off in Autumn, and planted in a strong Soil, and shady Situation; where, after they have taken Root, they will require little farther Care; but the plain Sort is as easily propagated by the Berries as the Mezereon.

The several Sorts of Mezereon are propagated by sowing their

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Seeds; the best Season for which is in July, soon after they are ripe, when they begin to fall from the Trees. These should be sown upon an East Border, where they may have only the morning Sun, and cover'd about half an Inch with fresh Earth; in the Spring following some of the Plants will appear, when they must be carefully clear'd from Weeds, and in dry Weather should be often water'd, which will greatly promote their Growth: but as the Seeds often lie in the Ground a whole Year before the Plants appear, the Ground should not be disturb'd till there is no Hope of more Plants coming up. In this Border they may remain two Years, by which time they will be strong enough to transplant; when there should be a Spot of fresh light Earth prepar'd for them, into which they should be planted in Autumn, in Rows two Feet Distance, and the Plants eight Inches asunder in the Rows, treating them afterwards in the usual manner with other Kinds of Shrubs, while in this Nursery; and when they are large enough to plant out for good, they may be taken up in Autumn, with a Ball of Earth to the Root of each Plant, and plac'd where they are to remain; which should be in a light moist Soil, and a shady Situation, where they will thrive and flower extremely well.

There have been many of these Plants taken out of some Woods near Andover in Hampshire; but how they came thither is not at present known; for this Shrub is not a Native of England.

These Plants are great Ornaments to a Garden early in the Spring, before other Shrubs are in Flower; for, if the Season is mild, they often flower in January; but in February they are always in Perfection. They

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seldom grow to be more than five or six Feet high in *England*; so should be planted among other Shrubs of the same Growth.

The Sort with strip'd Leaves may be propagated by budding or inarching it upon the plain Sort; because the Seeds will not produce striped Plants.

The sixteen Sorts next-mention'd grow wild in *Germany*, *Bohemia*, *Austria*, on the *Alps* and *Apennines*, and some in the South of *France*, in *Spain*, and *Portugal*; but most of them are Strangers in *England*, where there are but few of the Plants to be found. Indeed, some of the Sorts are so difficult to transplant, that when they are remov'd from the Places of their natural Growth into the neighbouring Gardens, they will not thrive; particularly the eighth Sort, which is one of the most beautiful of the whole Tribe; the Flowers of this Sort being of a bright-purple Colour, and have a very fragrant Scent.

The twenty-second Sort is now in several of the *English* Gardens; but the Plants make but little Progress as yet. This will live through the Winter in the open Air, provided it grows on a dry Soil, and in a shelter'd Situation; but it will be proper to keep a Plant or two in Pots, to be remov'd into Shelter in Winter, for fear those in the open Air should be destroy'd by severe Frost.

Most of these Sorts may be propagated by Seeds, which must be sown and treated in the same manner as hath been directed for the Mezereon; and the Seeds of these are apt to remain as long in the Ground: therefore the same Caution should be us'd, not to disturb the Earth where the Seeds are sown, until there are no Hopes of more Plants coming up for some Seeds may grow the first

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Year, and others not till the second or third Year.

The twenty-third, and the five next-following Sorts, were discovered by Dr. *Tournefort* in the *Lervant*, from whence he sent their Seeds to the Royal Garden at *Paris*, where many of the Plants were rais'd; but most of the Kinds have been since lost: so that at present there are few of them to be found in the Gardens of *Europe*; tho' they are hardy enough to live through the Winter in the open Air, if they are planted in a warm Situation.

These Sorts may be propagated by Seeds, in the same manner as the former: but as they are difficult to procure, the best way will be to sow the Seeds in Pots; which may be plac'd under a Frame in Winter, to shelter them from the Frost; but they must be kept open in mild Weather, and in Summer the Pots may be remov'd into a shady Situation; which is more agreeable to the Seeds, than in a Place which is expos'd to the Sun. When the Plants are come up, they may be transplanted in the Autumn, either into Nursery-beds, or into small Pots; where they may grow a Year or two to get Strength, and afterward be transplanted where they are to remain.

These Plants continue green throughout the Year, which renders them worthy of a Place in good Gardens; where, if they are rightly dispos'd, they will afford an agreeable Variety. Most of these are low Shrubs, which seldom rise above two or three Feet high; so are very proper to plant under Trees to fill up the Vacancies, where they will have a good Effect. The Seeds of the seventh Sort are used in Medicine, so that the Plants of this Kind are preserv'd in Physic-gardens; but this makes

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makes the meanest Appearance of all the Sorts.

The twelve Sorts which are last-mention'd, are much tenderer than the former. All of these (except the last) grow near the *Cape of Good Hope*; from whence several of them have been brought into the *European Gardens*. These Plants may also be propagated by Seeds; but as they very rarely produce their Seeds in *England*, they are commonly propagated by laying down their Branches; which, if rightly manag'd, will take Root in one Year. The best time to lay down the Branches is in the Beginning of *April*: the Branches which are chosen to make Layers, should be of the former Year, or at most but two Years old: these should be a little twisted at the Part which is laid in the Ground, which will cause them to root the sooner. In dry Weather they must be duly water'd, otherwise the Shoots will harden; which will prevent their putting out Roots. By the *April* following they will be rooted, when they may be cut off from the old Plants, and each planted into a small Pot fill'd with fresh Earth; and if they are plung'd into a very moderate Hot-bed, it will forward their taking new Root. These must be screen'd from the Sun every Day till they are rooted; after which time they must be enured to bear the open Air by degrees; and in the Middle of *May* they should be plac'd abroad in a shelter'd Situation, where they will make an agreeable Variety amongst other Exotic Plants.

These Plants must be remov'd into the Green house in Autumn, and plac'd where they may enjoy as much free Air as possible in mild Weather; but they must be protected from Frost. During the Winter-season they must be frequently refreshed with Water; for they are pretty thirsty Plants; but in very cold Wea-

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ther it must be given to them sparingly. In Summer they must be plac'd abroad with *Geraniums*, *Alaternoides's*, and other Plants of the same Country, and treated in the same manner as hath been directed for those; with which Management they will thrive very well. The Flowers of these Plants, being very small, do not afford any great Pleasure, but for the singular Oddness of the Leaves and Branches. These Plants deserve a Place in good Green-houses, for Variety-sake.

The last Sort is more tender than any of the rest, as it is a Native of the warmer Parts of *America*. This was discover'd by Father *Plumier*, in some of the *French Settlements in America*; and hath been observ'd growing in great Plenty, at the *Havannah*, by the late Dr. *William Houfloun*, who sent the Seeds to *England*. It was also found by Mr. *Robert Millar* at *Campechy*, who also sent the Seeds to *England*; from which many Plants have been rais'd.

The Seeds of this Plant should be sown in Pots of fresh Earth, and then plung'd into a moderate Hot-bed of Tanners Bark; observing frequently to water the Pots, to keep the Earth moist, which will bring up the Plants in about six Weeks time. When these Plants are about two Inches high, they should be shaken out of the Seed-pots, and each planted in a small Pot fill'd with fresh loamy Earth, and then plung'd into a moderate Hot-bed of Tanners Bark, where they must be shaded from the Heat of the Sun until they have taken new Root; after which time they must be treated in the same manner as hath been directed for other Exotic Plants, which are the Produce of the hottest Countries.

In this Hot-bed the Plants may remain till about *Michaelmas*, when the Nights will begin to be too cold

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for these Plants; therefore they should be removed into the Stove, and plunged into the Bark-bed. During the Winter-season these Plants must be kept very warm, especially while they are young, because they make but little Progress the first Year; and if they are stinted the first Winter, they do not recover in a long time after. These Plants should constantly remain in the Stove, and should be treated in the same manner as hath been directed for the *Suriana*.

THYMUS, Thyme.

The Characters are;

It hath a labiated Flower, consisting of one Leaf, whose Upper-lip is erect, and generally split in two; and the Under-lip is divided into three Parts; out of the Flower-cup arises the Pointal, accompanied by four Embryoes, which afterward become so many Seeds inclos'd in an Husk, which was before the Flower-cup: to these Marks must be added, Hard ligneous Stalks, and the Flowers gathered into Heads.

The Species are;

1. THYMUS *vulgaris, folio latiore*. C. B. P. Common broad-leav'd Thyme.

2. THYMUS *vulgaris, folio tenuiore*. C. B. P. Common narrow-leav'd Thyme.

3. THYMUS *vulgaris, folio latiore variegato*. Broad-leav'd striped Thyme.

4. THYMUS *capitatus, qui Dioscoridis*. C. B. P. The true Thyme of the Antients.

There are several other Species of Thyme, which are preserv'd in Botanic Gardens for Variety; but as they are seldom cultivated for Use, I shall not enumerate them in this Place. The Sort with broad Leaves is the most common in *England*: this is cultivated in the Kitchen-gardens

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as a Soup-herb, and also for medicinal Use. The next two Sorts are preserv'd in many Gardens for Variety, being equally as good as the first for Use: but the fourth Sort is less common in *England* than either of the former.

These Plants may be propagated either by Seeds, or parting their Roots; the Season for either is in *March*. If it is done by sowing the Seeds, they should be sown upon a Bed of light Earth, observing not to bury them too deep, which will cause them to rot: when the Plants are come up, they should be carefully cleared from Weeds; and if the Spring should prove dry, and they are watered twice a Week, it will greatly promote their Growth; and in *June* the Plants should be thinn'd, leaving them about six Inches asunder each Way, that they may have room to spread; and those Plants which are drawn out may be transplanted into fresh Beds at the same Distance, observing to water them until they have taken Root; after which they will require no farther Care, but to keep them clear from Weeds; and in the Winter following they may be drawn up for Use.

But if the Plants are propagated by parting their Roots, the old Plants should be taken up about the Latter-end of *March*, and split into as many Parts as can be taken off with the Root: these should be transplanted into Beds of fresh light Earth, at six or eight Inches Distance; observing, if the Season is dry, to water them until they have taken Root: after which they must be weeded, and they will thrive, and soon be fit for Use.

In order to save Seeds of these Plants, some of the old Roots should remain unremoved in the Place where they were sown the preceding Year:

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Year: these will flower in *June*, and in *July* the Seed will ripen, which must be taken as soon as it is ripe, and beat out, otherwise the first Rain will wash it all out of the Husks.

These Plants root greatly in the Ground, and thereby draw out the Goodness of the Soil sooner than most other Plants; so that whatever is sown or planted upon a Spot of Ground, whereon Thyme grew the preceding Year, will seldom thrive, unless the Ground be trench'd deeper than the Thyme rooted.

THYME THE LEMON. *Vide Serpyllum.*

THYME THE MARUM. *Vide Marum.*

THYME THE MASTICH. *Vide Mastichina.*

TILIA, The Lime, or Linden-tree.

The Characters are;

The Flower consists of several Leaves, which are plac'd orbicularly, and expand in form of a Rose; having a long narrow Leaf growing to the Footstalk of each Cluster of Flowers; from whose Cup rises the Pointal, which afterward becomes a testiculated Fruit, consisting of one Capsule, containing an oblong Seed in each.

The Species are;

1. *TILIA fœmina, folio majore.*
C. B. P. The common or broad-leav'd Lime-tree.

2. *TILIA fœmina, folio minore.*
C. B. P. The small-leav'd Lime-tree.

3. *TILIA foliis molliter hirsutis, viminibus rubris, fructu tetragono.*
Raii Syn. The red-twigg'd Lime-tree.

4. *TILIA Caroliniana, folio longius mucronato.* The Carolina Lime-tree.

5. *TILIA fœmina, folio majore variegato.* The striped-leav'd Lime-tree.

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6. *TILIA foliis majoribus mucronatis & rugosioribus.* The American black Lime-tree.

The three first-mention'd Trees are very common in *England*, being cultivated in most Nurseries; but the *Carolina* and *American* black Lime are not at present very common. The Seeds of the first were sent from *Carolina* by Mr. *Mark Catesby*, in the Year 1726; but as yet there does not appear any considerable Difference between this and the common Sort: the Seeds of the latter I receiv'd from *Virginia*. That with striped Leaves is preserv'd by some for the sake of Variety; but there is no great Beauty in it.

The sixth Sort has been lately introduced from *North-America* into the *English* Gardens: the Leaves of this Sort are much larger and rougher than either of the other, having somewhat the Appearance of those of the Mulberry tree: the Shoots and Buds are of a dark Colour; from whence I suppose the Name of Black-lime was applied to it by the Inhabitants of *America*.

This Sort is as hardy as any of the other: but it is not so quick of Growth: the Shoots of one Year seldom exceed six Inches; tho' by the Appearance of the Stems, it seems as if it was a Tree of large Growth in its native Country.

All these Trees are easily propagated by Layers, which in one Year will take good Root, and may then be taken off, and planted in a Nursery, at four Feet Distance Row from Row, and two Feet asunder in the Rows: the best time to lay them down, and to remove them, is at *Michaelmas*, when their Leaves begin to fall, that they may take Root before the Frost comes on, though they may be transplanted any time from *September* to *March*, in open

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Weather ; but if the Soil is dry, it is much the better way to remove them in Autumn, because it will save a great Expence in watering them, especially if the Spring should prove dry. In this Nursery they may remain four or five Years; during which time the Ground should be dug every Spring, and constantly kept clear from Weeds; and the large Side-shoots pruned off, to cause them to advance in Height; but the small Twigs must not be pruned off from the Stems; because these are absolutely necessary to detain the Sap, for the Augmentation of their Trunks, which are apt to shoot up too slender, when they are intirely divested of all their lateral Twigs. If the Soil in which they are planted be a fat Loam, they will make a prodigious Progress in their Growth; so that in five Years time they will be fit to transplant out where they are to remain.

These Trees were some Years since greatly esteemed for planting of Walks and Avenues near Habitations; because in a few Years they would afford a pleasant Shade, and might be removed, when grown to a large Stature, without Hazard; so that a Person might enjoy the Pleasure of them in a short time: but of late they are much less valued, on account of their Leaves decaying early in Autumn (especially if the Soil be dry, in which they are planted); so that many times they are almost destitute of Leaves by the Beginning of *September*; whereas the Elm continues in Beauty a full Month longer; and the Wood of the latter being much preferable to that of the former, it has superseded these Trees in most of the modern Plantations.

The Timber of the Lime-tree is used by the Carvers, it being a soft

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light Wood; as also by Architects for framing the Models of their Buildings; the Turners likewise use it for making light Bowls, Dishes, &c. but it is too soft for any strong Purposes.

These Trees will continue sound a great Number of Years; and, if planted in good loamy Soil, will grow to a considerable Bulk: I have measur'd one of these Trees, which was near ten Yards in Girt two Feet above the Ground, and was then in a very thriving Condition: and Sir *Thomas Brown* mentions one of these Trees which grew in *Norfolk*, that was sixteen Yards in Circuit, a Foot and an half above-ground, in Height thirty Yards, and in the least Part of the Trunk it was eight Yards and an half.

TINUS, *Laurus Tinus, vulgo.*

The Characters are;

The Flowers grow in Clusters, and consist of one Leaf, which is divided into five Parts toward the Top: these are succeeded by small Fruit, shaped somewhat like an Olive; but are umbilicated, each containing one pear-shaped Seed.

The Species are;

1. TINUS prior. *Clus. Hist.* The Bastard shining-leav'd *Laurus Tinus, vulgo.*

2. TINUS II. *Clus. Hist.* The rough-leav'd *Laurus Tinus, vulgo.*

3. TINUS III. *Clus. Hist.* The small-leav'd *Laurus Tinus, vulgo.*

4. TINUS prior *Clusii, folio atroviridi splendente.* The shining-leav'd *Laurus Tinus, vulgo.*

5. TINUS prior *Clusii, foliis ex albo variegatis.* The shining-leav'd *Laurus Tinus.*

6. TINUS II. *Clusii, foliis ex luteo variegatis.* The striped rough-leav'd *Laurus Tinus.*

7. TINUS *foliis ovatis in petiolos terminatis integerrimis. Flor. Virg. American*

American Laurus Tinus, with oval whole Leaves.

These Plants are greatly propagated in the Gardens near *London* for their Beauty, the Leaves always remaining green; and their Flowers are produc'd in great Plenty in the Winter-season, when few other Shrubs flower.

These Plants were a few Years since preserved in Pots and Tubs, and plac'd in the Green-house in Winter, with Oranges, Myrtles, and other Exotic Trees; but of late Years they have been planted in the open Ground, where they resist the Cold of our ordinary Winters very well, and are rarely injured, except in very severe Frosts; and then they are seldom destroyed, though their Heads may be kill'd, as was the Case with many of these Trees in the Years 1728. and 1740. yet those which were left undisturb'd shot out fresh again the following Summer, and have since made good Plants; which should caution People from rooting out Plants too soon, when they may seem to be kill'd by Frost.

These Plants may be propagated by laying down their tender Shoots in Autumn, which, if kept clear from Weeds, and duly watered in dry Weather, will take Root by the succeeding Autumn, when they should be taken off, and transplanted into a mellow loamy Soil, but not too wet, at three Feet Distance Row from Row, and eighteen Inches asunder in the Rows, observing to lay some Mulch upon the Surface of the Ground about their Roots; and in dry Weather to refresh them with Water until they have taken Root.

There should also be some strait Stakes fix'd down by the Side of each Plant (if they are design'd for Standards), to which they should be fastened, in order to render their Stems

strait, otherwise they will be crooked and unsightly: but it is not proper to have these Plants more than two Feet high in clear Stems; because when their Heads are advanced above Sight, the Beauty of the Plants is lost, and they are in great Danger of being destroy'd in bad Weather: therefore, when their Stems are two Feet high, their upright Shoots should be stopp'd, in order to force out lateral Branches; which may be so pruned in the growing Season, as to form them into regular Heads; but this should not be done with Sheers (as is the common Practice, whereby their Leaves are cut, and render'd very unsightly), but rather skilfully pruned with a Knife, allowing their Branches a proportionable Distance to the Breadth of their Leaves, which will be close enough to render them beautiful, and at the same time will encourage their Flowering: for when they are continually clipp'd, their Branches are very weak, and often decay in the Middle; and their Flowers are never so large, nor produc'd in so great Plenty, as when they have a greater Distance allow'd to their Shoots.

As the Flowers are produced at the Extremity of their Shoots, if they are clipp'd in the Summer, they will not produce Flowers the following Winter; therefore when the Shoots are pruned, it should be done early in the Spring, before they make new Shoots; otherwise the great Beauty of the Plants will be lost.

The second and third Sorts are the best for this Climate, because they are hardier, and will flower much better, than either of the other Kinds: these frequently begin to flower about *Michaelmas*; and if they are not injur'd by severe Frost, will continue in Flower all the Win-

ter and Spring, when they make a very agreeable Appearance.

The fourth Sort is not quite so hardy, and is later in the Season before it comes to flower; so that unless the Winter is favourable, or the Plants are shelter'd, they seldom produce many Flowers; but in very mild Winters, when the Plants are not injur'd, they make a fine Appearance; the Flowers of this Kind being much larger than those of the other Kinds.

In this Nursery the Plants may remain four or five Years; during which time they should be carefully clear'd from Weeds, and the Ground dug every Spring; in doing of which their Roots should be carefully cut round, to 'cause them to produce more Fibres, whereby they may be remov'd with greater Safety, because the Earth will be the better supported by their Roots. The best time to transplant them is about the Beginning of *October*, as hath been directed for Laurels, and some other Sorts of Ever-greens, that being the Season they begin to flower.

These Shrubs are very ornamental, when planted in the lower Part of Clumps, and other Plantations of Ever-greens, if they are mix'd with other Plants of the same Growth: and in these Plantations they will not be so liable to suffer by Frost, because their Stems will be defended by the neighbouring Plants. They are also very proper to plant round the Verges of Woods, and tall Wildernesses, by way of Border to them; where if they are interspers'd with Laurels, and other Ever-greens, they add greatly to the Variety of such Plantations, especially in the Winter-season, when the other Trees are destitute of Leaves: and in the Summer, when the other Trees are in

full Leaf, the Green of these being of a darker Shade, make a good Contrast with the others.

There are some who make Hedges of these Plants; but they are by no means proper for that Purpose, because their Leaves are large, which occasions their Branches to be produced at a farther Distance; and these, when cut, appear very unsightly; besides, the Branches of these Trees are weak; so are not able to support themselves when they are cut pretty thin; so that the Winds and Snow frequently displace the Branches, and render these Hedges very unsightly: therefore I do not recommend them for this Purpose; but rather to have them grow in their natural way, without any Pruning, unless that of reducing irregular or misplaced Shoots: these may be shortened, or intirely cut off, according as the Plants may require; and this one Pruning every Spring will be sufficient to keep them constantly in Order, without injuring their flowering, which should always be avoided.

The sixth Sort has been lately introduced into the *English* Gardens from *North-America*, and hath not as yet produced any Flowers in this Country: the Seeds of this I received from the late Dr. *Thomas Dale* from *Carolina*: the Plants which I have rais'd are somewhat tender while young; but afterward thrive very well in the open Air: these have constantly retained their Leaves all the Year; but there have been some Plants brought from *Maryland* and *Virginia*, by the same Title, which cast their Leaves in Winter, and appear to be much hardier than those from *Carolina*; though there are some Persons, who affirm they are the same, which at present seems very unlikely;

unlikely; however, when they have produced Flowers, their Difference may be better ascertained.

TITHYMALUS, Spurge.

The several Kinds of Spurge having been ranged under the Title of *Euphorbia* by Dr. *Linnaeus*, as they agree well together in their Flower and Fruit; and were separated by former Botanists, for their outward Appearance only; therefore I have followed the Doctor in placing them together: but as there is an essential Difference between the Flowers of this Genus, and those of *Euphorbia*, I have applied the old Name to this Genus, rather than that of *Tithymaloides*.

The Characters are;

The Flower consists of one Leaf, and is in Shape somewhat like a Slipper; whose Pointal afterward becomes a tricapsular Fruit, like that of Euphorbia.

The Species are;

1. TITHYMALUS *frutescens, folio myrti amplissimo. Tourn.* The American shrubby laurel-leav'd Spurge, vulgo.

2. TITHYMALUS *frutescens, foliis nerii. Plum.* Shrubby Spurge, with an Oleander-leaf.

The second Sort was brought from *Barbados*, into the *English* Gardens, by the Name of Poison-bush; the milky Juice of the Plant, with which it greatly abounds, being very acrid, and will draw Blisters on the Skin: if this Juice mixes with the Blood, it is said to be of a deadly Nature; so that if the Points of Arrows, or the Edges of Swords, are rubbed over with this Juice, I have been informed, that whatever Animal is wounded with these, surely dies, though the Wounds are not deep, or in any dangerous Part.

The first Sort was sent from *Campechy* by the late Mr. *Robert Millar*,

a Surgeon: the Branches of this Sort are weaker than those of the other, and grow much longer, so that they require to be supported: the Leaves are short and broad, ending in a Point: these are not near so thick as those of the former, and are of a lighter Green: the whole Plant abounds with a milky Juice of a sharp acrid Quality; so I believe it to be equally poisonous with the other; for if a Branch is cut off, the Juice will immediately corrode the Knife.

They are both propagated by Cuttings, which may be taken from the Plants during any of the Summer-months; and after having lain in a dry Place for a Fortnight or three Weeks, until the wounded Part be healed over, they should be planted into small Pots fill'd with light sandy Earth mix'd with Lime-rubbish, and then plunged into an Hot-bed of Tanners Bark, observing now-and-then to refresh them gently with Moisture; but they should never receive much Wet, which will rot them.

After they have taken Root, they may have a greater Share of Air by raising the Glasses; but they must never be expos'd to the open Air: in this Bed they may remain until the Beginning of *October*, when they must be remov'd into the Stove, and plac'd with the Melon and Torch-thistle, in a warm dry Stove; and, during the Winter-season, they should have very little Water, which, if given in Plenty, seldom fails to rot them.

These Plants are too tender to thrive in the open Air in *England*; therefore the Plants should constantly remain in the Stove, observing in the Summer-season, when the Weather is warm, to admit a large Share of fresh Air to them, and in the Winter

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Winter to place them in a warm Part of the Stove, otherwise they cannot be preserv'd.

These Plants must be shifted every Summer, and fresh Earth given to them: if the Earth is light and sandy, it will require no Mixture; for rich or strong Ground is very improper for them; therefore where the Soil is inclinable to either of these, there should be a good Mixture of Sand and Lime-rubbish, to prevent its binding, or detaining Moisture.

These Plants are preserv'd for their odd Appearance amongst other succulent Plants, their Leaves being very large, thick, and full of a milky acrid Juice.

TITHYMALUS. *Vide Euphorbia.*

TOAD-FLAX. *Vide Linaria.*

TOBACCO. *Vide Nicotiana.*

TORDYLIUM, Hartwort.

The Characters are;

It is an umbelliferous Plant, with a rose-shap'd Flower, consisting of five unequal heart-fashion'd Petals, which are placed circularly, and rest on the Empalement, which afterward becomes an almost round Fruit, composed of two flat Seeds, which easily cast off their Covering, with a raised Border, which is commonly indented.

The Species are;

1. **TORDYLIUM maximum.** *Inst. R. H.* The greatest Hartwort.

2. **TORDYLIUM Narbonense minus.** *Inst. R. H.* Small Hartwort of Narbonne.

3. **TORDYLIUM Apulum minimum.** *Col. P. 4. 124.* The smallest Hartwort of Apulia.

4. **TORDYLIUM minus, limbo granulato,** *Syriacum. Mor. Umb.* Small Hartwort of Syria, with a granulated Border.

5. **TORDYLIUM folio longo angusto, flore albo magno, semine elegantissime**

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& profundissime crenato albo. Boerb. Ind. alt. Hartwort with a long narrow Leaf, a large white Flower, and a white Seed beautifully and deeply notch'd.

6. **TORDYLIUM Orientale, Secacul Arabum dictum** *Rauwolfio. Boerb. Ind. alt.* Eastern Hartwort, call'd by *Rauwolf*, *Secacul* of the Arabians.

7. **TORDYLIUM Lusitanicum, cicuta folio, semine striato.** *Inst. R. H.* Portugal Hartwort, with an Hemlock-leaf, and a streak'd Seed.

8. **TORDYLIUM album, facie tordylly lutei Columnæ.** *Hort. Cath.* White Hartwort, with the Appearance of *Columna's* yellow Hartwort.

All these are annual Plants, which perish soon after they have perfected their Seeds. The first Sort is found wild in several Parts of *England*: and the second Sort has been by some mention'd as an indigenous Plant of this Country; but I believe it is nowhere found wild, unless where the Seeds have been purposely scatter'd. These Plants are preserv'd in the Gardens of some Persons who are curious in Botany; but there is little Beauty in them.

They are propagated by Seeds, which should be sown in the Autumn soon after they are ripe; when the Plants will soon appear, and are very hardy, so that they require no farther Care, but to keep them clear from Weeds; and where they come up too close together, they should be thinned so as to leave them six Inches asunder. In *June* following the Plants will flower, and their Seeds will ripen in *August*; which, if permitted to scatter on the Ground, will produce a Supply of Plants without any Trouble. If the Seeds of these Plants are kept out of the Ground till Spring, they seldom succeed; for if any Plants are produced

duced from the Seeds then sown, they commonly perish before they have perfected their Seeds; whereas those which are sown in Autumn do rarely fail. These Plants will grow on any Soil or Situation, so may be put into any obscure Part of the Garden.

TORMENTILLA, Tormentil.

The Characters are;

The Flower consists of four Petals, which are placed orbicularly, and expand in form of a Rose; out of whose one-leaved Empalement (divided into several Segments, and shaped like a Basen) arises the Pointal, which afterward becomes an almost globular Fruit, in which many Seeds are gather'd into a sort of little Head, covered with the Empalement: to which must be added, That there are commonly seven Leaves growing on the Top of the Footstalk.

The Species are;

1. TORMENTILLA *sylvestris*. C. B. P. Wild Tormentil, or Septfoil.

2. TORMENTILLA *radice repente*. Inst. R. H. Creeping-rooted Tormentil.

3. TORMENTILLA *Alpina vulgaris major*. C. B. P. Greater Tormentil of the Alps.

4. TORMENTILLA *Cassubica major*. Inst. R. H. Greater Tormentil, with deep cut Leaves.

5. TORMENTILLA *Cassubica minor*. Inst. R. H. Smaller Tormentil, with deep-cut Leaves.

The first Sort grows wild everywhere on dry Pastures, and on Commons, in most Parts of England. The Roots of this Plant have been frequently used for Tanning of Leather, in Places where Oak-bark is very scarce. This Root is also much used in Medicine, and is accounted the best Astringent in the whole Vegetable Kingdom.

The second Sort is found in some

particular Places of England growing wild: the third Sort grows on the Alps; and the fourth and fifth Sorts grow in Denmark, Sweden, and some other Northern Countries; but are rarely preserved, unless in some Botanic Gardens, for the sake of Variety. It requires no Care to propagate these Plants, since, if their Seeds are sown in almost any Soil or Situation, the Plants will come up and flourish without any other Care, but to prevent their being over-run with great Weeds.

TOXICODENDRON, Poison-tree, vulgo.

The Characters are;

The Flower consists of five Leaves, which are placed orbicularly, and expand in form of a Rose; out of whose Flower-cup rises the Pointal, which afterward becomes a roundish, dry, and, for the most part, furrowed Fruit, in which is contained one compress'd Seed.

The Species are;

1. TOXICODENDRON *triphyllum glabrum*. Tourn. Three-leav'd smooth Poison-tree.

2. TOXICODENDRON *triphyllum, folio sinuato pubescente*. Tourn. Three-leav'd Poison-tree, with a sinuated hairy Leaf.

3. TOXICODENDRON *rectum, foliis minoribus glabris*. Hort. Elth. Upright Poison-tree, with smaller smooth Leaves.

4. TOXICODENDRON *rectum pentaphyllum glabrum, foliis latioribus*. Smooth five-leav'd upright Poison-tree, with broader Leaves.

5. TOXICODENDRON *amplexicaule, foliis minoribus glabris*. Hort. Elth. Climbing Poison-tree, with smaller smooth Leaves.

6. TOXICODENDRON *foliis alatis, fructu rhomboide*. Hort. Elth. Poison-tree with wing'd Leaves, and a Fruit shap'd like a Rhombus.

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The two first Species were brought from *Virginia*, many Years since, where they grow in great Plenty, as it is probable they do in most other Northern Parts of *America*. The first Sort seldom advances in Height; but the Branches trail upon the Ground, and send forth Roots, by which they propagate in great Plenty.

The second Sort will grow upright, and make a Shrub about four or five Feet high, but rarely exceeds that in this Country. This may be propagated by Layers, and is equally as hardy as the former.

The third Sort here mention'd grows erect to the Height of five or six Feet: the Leaves of this Kind are much smaller, than those of the common Poison-oak; but the Branches of this are flexible, so that it will never make a Shrub of any great Height or Strength.

The fourth Sort was found in *Maryland*, from whence the Seeds were sent to *England*. This grows more upright than the former, and by the Appearance of the young Plants, seems to be a Shrub of much larger Growth.

The fifth Sort is a Native of *Virginia*, from whence I received the Seeds: this puts out Roots from the Branches, which fasten themselves to the Stems of Trees, or the Joints of Walls, by which the Branches are supported.

The sixth Sort is a low Shrub, seldom rising more than five Feet high. All the Sorts of *Toxicodendron* differ in Sex, the Male never producing any Fruit, having small herbaceous Flowers, without any Embryoes.

These Plants are preserv'd by the Curious in Botany, for the sake of Variety; but as there is little Beauty in them, they are not much cultiva-

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ted in *England*. The Wood of these Trees, when burnt, emits a noxious Fume, which will suffocate Animals when they are shut up in a Room where it is burnt: an Instance of this is mention'd in the *Philosophical Transactions* by Dr. *William Sherard*, which was communicated to him in a Letter from *New-England* by Mr. *Moore*, in which he mentions some People who had cut some of this Wood for Fuel, which they were burning, and in a short time they lost the Use of their Limbs, and became stupid; so that if a Neighbour had not accidentally open'd the Door, and seen them in that Condition, it is generally believ'd they would soon have perish'd. This should caution People from making use of this Wood.

All these Sorts are hardy Plants, which will thrive in the open Air in this Country; but they love a moist Soil, and should be planted under Trees in Wilderesses, where they will thrive very well, and endure the Cold better than where they have a more open Exposure. They may be propagated by Seeds, or from Suckers, which some of the Sorts send forth in plenty, or by laying down the Branches of those Sorts which do not put forth Suckers; which in one Season will be sufficiently rooted to transplant; when they should be planted where they are design'd to remain. The best Time to remove these Shrubs is in *March*, because then there will be no Danger of their suffering by Frost.

When a Person is poisoned by handling this Wood, in a few Hours he feels an itching Pain, which provokes a Scratching, which is followed by an Inflammation and Swelling. Sometimes a Person has had his Legs poison'd, which have run with Water.

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ter. Some of the Inhabitants of *America* affirm, they can distinguish this Wood by the Touch in the Dark, from its extreme Coldness, which is like Ice : but what is mention'd of this poisonous Quality, is applicable to the sixth Sort here mention'd ; which, by the Description, agrees with this Species.

This Sort of Poison-tree is not only a Native of *America*, but grows plentifully on the Mountains in *Japan*, where it is called *Fasi No Ki* ; and from this Tree they extract one Sort of their Varnish or Lacca, which they use for jappanning their Utensils : but this is not their best Kind of Varnish, that being made of the Juice of another Tree, which is also very poisonous, and nearly allied to this ; and from which some Writers think it differs only by Culture.

The Juice of this Tree is milky, when it issues out of the wounded Part ; but soon after it is exposed to the Air, it turns black, and has a very strong fetid Scent, and is corroding : for I have observed, on cutting off a small Branch from one of these Shrubs, that the Blade of the Knife has been changed black in a Moment's time, so far as the Juice had spread over it ; which I could not get off without grinding the Knife.

As this Tree is very common in *Virginia*, *Carolina*, and *New-England*, it would be well worth the Inhabitants Trial, to make this Varnish.

TRACHELIUM, Throatwort.

The Characters are ;

It hath a funnel-shap'd Flower, composed of one Leaf, and cut into several Parts at the Top ; whose Em-palement afterward becomes a membranous Fruit often triangular, and divided into three Cells, which are full of small Seeds.

The Species are ;

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1. *TRACHELIUM azureum umbelliferum. Pon. Bald.* Blue umbelliferous Throatwort.

2. *TRACHELIUM umbelliferum violaceum, foliis laciniatis. Inst. R. H.* Throatwort with violet-colour'd Flowers growing in Umbels, and jagged Leaves.

3. *TRACHELIUM villosum, floribus confertim ex foliorum alis nascentibus. Inst. R. H.* Hairy Throatwort, with Flowers growing in Clusters from the Wings of the Leaves.

4. *TRACHELIUM petraeum, floribus in capitulum congestis. Inst. R. H.* Rock Throatwort, with Flowers collected in Heads.

5. *TRACHELIUM minus Africanum, floribus violaceis, per caulem sparsis. Inst. R. H.* Smaller African Throatwort, with violet-colour'd Flowers growing thinly on the Stalks.

6. *TRACHELIUM Americanum, sonchi folio, flore albo longissimo. Plum.* American Throatwort, with a Sow-thistle-leaf, and a very long white Flower.

The first Sort is preserv'd in many curious Gardens for the Beauty of its Flowers, which continue a long time, and are succeeded by new Umbels on the Tops of the younger Shoots ; so that the Plants continue in Beauty for some Months.

This Plant is supposed to be a Native of some of the Islands in the *Archipelago*, from whence it was first brought to *Italy*, and hath been since spread to many Parts of *Europe*. It is hardy in respect to Cold, provided it has a proper Situation, which should be in the Crevices of old Walls, where it will abide the Cold very well. When those Plants which grow on warm Borders are frequently destroyed, this Plant has propagated itself by Seeds, on the Walls of some Gardens, where it has been planted ;

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planted; and those Plants which have grown on the Walls have continued, when those which were in Pots, and preserv'd with Care, have been intirely destroyed.

The second Sort grows upon the Mountains of *Brescia*, about the Mouths of Caves, between the hardest Rocks; so that it is very difficult to get out the Roots.

The third Sort grows on the Rocks in several Places in the *Levant*.

All these Sorts are propagated by Seeds, which should be sown soon after they are ripe; for when they are kept out of the Ground till the Spring, they seldom grow. These Seeds should be sown in Pots fill'd with fresh undung'd Earth, and plac'd in a shady Situation till the Beginning of *October*, when they may be removed into a more open Exposure; where they may have as much Sun at possible, but be sheltered from cold Winds: when the Cold is severe, they should be placed under an Hot-bed-frame, where they may enjoy as much free Air as possible in mild Weather; but they must be screened from hard Frosts, otherwise they are frequently destroyed.

They may also be propagated by Off-sets or Cuttings, which may be taken off in the Spring or Summer-months; and should be planted in Pots fill'd with fresh undung'd Soil, and plac'd in a shady Situation until they have taken Root; when they may be removed into a shelter'd Part of the Garden; where, being mix'd with other hardy Exotic Plants, they will afford an agreeable Variety.

But as these Plants thrive better on old Walls, when by Accident they have arisen there from Seeds, so their Seeds, when ripe, may be scatter'd on such Walls as are old, or where

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there is Earth lodged sufficient to receive the Seeds; where the Plants will resist the Cold much better, and continue longer, than when sown in the full Ground; and when a few of the Plants are establish'd on the Walls, they will shed their Seeds, so that they will maintain themselves without any farther Care. I have observ'd some Plants of the first Kind, which have grown from the Joints of a Wall, where there has not been the least Earth to support them; which have resisted the Cold, tho' they have been greatly exposed to the Winds; so that these Plants are very proper to cover the Walls of Ruins, where they will have a very good Effect.

The fourth Sort grows on the Mountains in *Italy*, from between the Crevices of the Rocks; from whence it is difficult to get out the Roots. This may be treated in the same manner as the former Sorts, and will thrive better on Walls, than if sown or planted in the Earth.

The fifth Sort is an annual Plant, which was brought from the *Cape of Good Hope* to *Holland*, where it has been preserv'd in some of their curious Botanic Gardens. This Sort will succeed well, if the Seeds are permitted to scatter on the Pots of Earth which are near them, provided the Pots are plac'd in the Greenhouse; where the Plants will come up and flower early the following Summer, and will have time to perfect their Seeds; whereas, when the Seeds are sown in the Spring, the Plants will not flower till *August*; so that, if the Autumn should prove bad, they will not produce Seeds.

The sixth Sort grows plentifully in *Jamaica*, and several other Places in the warm Parts of *America*, where it grows in moist Places by the Sides of Rivers. This may be propagated by

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by Seeds, which should be sown early in the Spring on a moderate Hot-bed; and when the Plants are come up, they should be transplanted on another Hot-bed, to bring them forward; and then they may be treated in the same manner as hath been directed for the tender Sorts of *Rapuntium*: with which Management this Plant will thrive, and produce its Flowers; and if the Seeds are permitted to scatter, or are sown as soon as they are ripe, if the Pots are kept in the Stove, the Plants will come up, and flourish much better than those sown in the Spring.

TRAGACANTHA, Goats-thorn.

The Characters are;

It hath a papilionaceous Flower, out of whose Empalement arises the Pointal, which afterward becomes a bicapsular Pod fill'd with kidney-shap'd Seeds: to these Notes must be added, The Leaves grow by Pairs on a middle Rib, which always ends in a Thorn.

The Species are;

1. *TRAGACANTHA Massiliensis*. J. B. Goats-thorn of Marseilles.

2. *TRAGACANTHA Cretica incana*, flore parvo, lineis purpureis striato. T. Cor. Hoary Goats-thorn of Crete, with a small Flower striped with purple Lines.

3. *TRAGACANTHA humilis Balearica*, foliis parvis vix incanis, flore albo. Salvad. Low Balearic Goats-thorn, with small Leaves, and a white Flower.

4. *TRAGACANTHA altera, Poterium forte Clusio*. J. B. Another Goats-thorn, with Leaves falling off in the Winter.

5. *TRAGACANTHA Alpina semper-virens*, floribus purpurascens. Inst. R. H. Ever-green Alpine Goats-thorn, with purplish Flowers.

6. *TRAGACANTHA Cretica*, foliis minimis incanis, flore majore albo.

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Tourn. Cor. Goats-thorn of Canay, with very small hoary Leaves, and a larger white Flower.

7. *TRAGACANTHA Orientalis humillima*, flore magno albo. *Tourn. Cor.* A very low Eastern Goats-thorn, with a large white Flower.

8. *TRAGACANTHA Orientalis humillima, barbæ Jovis folio*. *Tourn. Cor.* A very low Eastern Goats-thorn, with a Jupiter's-beard-leaf.

9. *TRAGACANTHA Orientalis humillima, foliis angustissimis argenteis*. *Tourn. Cor.* A very low Eastern Goats-thorn, with very narrow silver Leaves.

10. *TRAGACANTHA Orientalis humillima, se spargens, floribus spicatis*. *Tourn. Cor.* A very low spreading Eastern Goats-thorn, with Flowers growing in Spikes.

11. *TRAGACANTHA Orientalis humillima incana, flore purpurascens*. *Tourn. Cor.* A very low hoary Eastern Goats-thorn, with a purplish Flower.

12. *TRAGACANTHA Orientalis erectior, foliis vicæ glabris, & ramis tomentosis*. *Tourn. Cor.* A more upright Eastern Goats-thorn, with smooth Vetch-leaves, and woolly Branches.

13. *TRAGACANTHA Orientalis humilis, candidissima & tomentosa, floribus in foliorum alis in capitulum densum nascentibus*. *Tourn. Cor.* A lower very white and woolly Eastern Goats-thorn, with Flowers growing in thick Heads, from the Wings of the Leaves.

14. *TRAGACANTHA Orientalis humilis, floribus luteis dense congestis in foliorum alis*. *Tourn. Cor.* A low Eastern Goats-thorn, with yellow Flowers thick-set in the Wings of the Leaves.

15. *TRAGACANTHA humilior, luteis floribus*. C. B. P. A lower Goats-thorn, with yellow Flowers.

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16. *TRAGACANTHA Orientalis, floribus luteis in capitulum longo pediculo donatum congestis. Tourn. Cor.* Eastern Goats-thorn, with yellow Flowers gathered into an Head on a long Footstalk.

17. *TRAGACANTHA Orientalis vesicaria, floribus purpureis in capitulum longo pediculo donatum congestis. Tourn. Cor.* Bladder Eastern Goats-thorn, with purple Flowers gathered into an Head, and set on a long Footstalk.

18. *TRAGACANTHA Orientalis latifolia, flore purpureo magno. Tourn. Cor.* Eastern Goats-thorn, with a large purple Flower.

19. *TRAGACANTHA Orientalis, foliis angustissimis, flore purpurascens. Tourn. Cor.* Eastern Goats-thorn, with very narrow Leaves, and purplish Flower.

20. *TRAGACANTHA Orientalis, foliis oleæ, humillima, floribus in capitulum congestis. Tourn. Cor.* A very low Eastern Goats-thorn, with oblong Leaves, and Flowers gather'd into an Head.

21. *TRAGACANTHA Orientalis, foliis oleæ, incanis & tomentosis, caule abmo ad summum florido. Tourn. Cor.* Eastern Goats-thorn, with hoary and woolly Olive-leaves, and Flowers growing from the Bottom to the Top of the Stalks.

22. *TRAGACANTHA Orientalis, foliis incanis, caule & ramulis tomentosis. Tourn. Cor.* Eastern Goats-thorn, with hoary Leaves, and woolly Stalks and Branches.

23. *TRAGACANTHA foliis incanis minoribus, minusque villosis. Boerb. Ind. alt.* Goats-thorn with smaller hoary Leaves, which are less hairy.

Most of the Sorts here mention'd were discovered by Dr. Tournefort in the *Levant*; from whence he sent the Seeds of several Kinds to the Royal Garden at *Paris*.

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All these Sorts may be propagated by Seeds, which should be sown on a Bed of fresh Earth in *March*; and when the Plants come up, they should be carefully kept clean from Weeds; which, if permitted to grow amongst the Plants, would soon overbear and destroy them, while they are young. If the Season should prove very dry, it will be of great Service to water the Plants now-and-then; and when they are large enough to transplant, they should be carefully taken up, and some of them planted in small Pots fill'd with fresh Earth, placing them in the Shade until they have taken Root; after which time they may be removed into an open Situation, where they may remain till the Latter-end of *October*; when they should be placed under a common Frame, where they may be shelter'd from severe Frost, but may have free Air in mild Weather; when the Glasses should not be put over them.

The Remainder of the Plants may be planted on a warm dry Border, where they must be shaded until they take Root; and if the Season should continue dry, they must be refresh'd with Water, otherwise they will be in Danger; because while they are so young, their Roots will not have establish'd themselves in the Ground, sufficiently to nourish them, in great Droughts.

Those Plants which are planted in Pots, may be preserved for a Year or two under Frames in Winter, until they have obtained Strength, when they may be shaken out of the Pots, and planted in a lean dry Soil, and a warm Situation, where they will endure the Cold of our ordinary Winters very well; but as they are sometimes destroyed by hard Winters, it will be proper to keep a Plant of each Kind in Pots, which may be sheltered

sheltered in Winter to preserve the Species.

These Plants may be propagated by Cuttings ; for as they rarely produce Seeds in this Country, the latter Method is only used here. The best time for this Work is in *April*, just as the Plants begin to shoot ; at which time the tender Branches of the Plants should be taken off, and their lower Parts divested of the decay'd Leaves ; then they should be planted on a very moderate Hot-bed, which should be cover'd with Mats, to screen them from the great Heat of the Sun by Day, and the Cold by Night : these Cuttings should be frequently water'd until they have taken Root ; after which they may be expos'd to the open Air, observing always to keep them clear from Weeds ; and in very dry Weather they must be refresh'd with Water.

On this Bed they may remain until the following Spring, where, if the Winter should be very severe, they may be cover'd with Mats, as before ; and in *April* they may be transplanted out either into Pots fill'd with sandy light Earth, or into warm Borders, where, if the Soil be dry, gravelly, and poor, they will endure the severest Cold of our Climate ; but if they are planted in a very rich Soil, they often decay in Winter.

From the second Sort, Monsieur *Tournefort* says, the Gum Adragant, or Dragon, is produc'd in *Crete* ; of which he gives the following Relation in his Voyage to the *Levant* : " We had the Satisfaction of fully observing the Gum Adragant on Mount *Ida*. I cannot understand how *Bellonius* comes to assert so positively, that there is no such thing in *Candia* : sure he had not read the first Chapter of

" the ninth Book of *Theophrastus's*
 " History of Plants ! The little
 " bald Hillocks about the Sheepfolds
 " produce much of the *Tragacantha*, and that too a very good
 " Sort. *Bellonius*, and *Prosper*
 " *Alpinus*, were doubtless acquaint-
 " ed with it ; tho' it is hardly possi-
 " ble, from their Descriptions, to
 " distinguish it from the other Kinds
 " they make mention of. This
 " Shrub spontaneously yields the
 " Gum Adragant toward the
 " End of *June*, and in the follow-
 " ing Months ; at which time, the
 " nutritious Juice of this Plant,
 " thicken'd by the Heat, bursts open
 " most of the Vessels wherein it is
 " contained. It is not only gather-
 " ed in the Heart of the Trunk and
 " Branches, but also in the Interspa-
 " ces of the Fibres, which are spread
 " in the Figure of a Circle like Rays
 " of the Sun : this Juice is coagula-
 " ted into small Threads, which,
 " passing thro' the Bark, issue out
 " by little and little, according as
 " they are protruded by the fresh
 " Supplies of Juice arising from the
 " Roots. This Substance, being
 " expos'd to the Air, grows hard,
 " and is form'd either into Lumps,
 " or slender Pieces, curl'd and wind-
 " ing in the Nature of Worms,
 " more or less long, according as
 " Matter offers. It seems as if the
 " Contraction of the Fibres of this
 " Plant contributes to the expressing
 " of the Gum. These delicate Fi-
 " bres, as fine as Flax, being unco-
 " ver'd, and trodden by the Feet of
 " the Shepherds and Horses, are by
 " the Heat shrivell'd up, and facili-
 " tate the Emanation of the extrava-
 " dated Juices."

But notwithstanding what *Tournefort* has said concerning the Gum Adragant being produc'd from that particular Species, many Authors

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are of Opinion, that it is taken from several other Species, but particularly that of *Marfeilles*, from whence that Gum is often brought into *England*.

At present these Plants are rarely preserved, excepting by some Persons who are curious in Botany: yet in large Gardens many of them deserve a Place; where if they are planted on Hillocks, or the Slopes of dry Banks, they will have a very good Effect, especially those which retain their Leaves thro' the Year.

TRAGIA.

The Characters are;

It hath a funnel-shaped Flower, consisting of one Leaf, for the most part divided into three Segments; but these are barren; for the Embryoes are plac'd at a Distance on the same Plant, which afterward becomes a tricoccus Fruit, compos'd of three Cells, each containing one spherical Seed.

The Species are;

1. *TRAGIA alia scandens, urticae folio. Plum. Nov. Gen.* Climbing Tragia, with a Nettle-leaf.

2. *TRAGIA scandens, longo betonicae folio. Plum. Nov. Gen.* Climbing Tragia, with a long Betony-leaf.

These Plants were discovered by Father *Plumier* in *America*, who constituted this Genus by this Name in Honour to *Hieronymus Bock*, a famous Botanist, who was commonly called *Tragus*.

The first Sort grows plentifully in the *Savannahs* in *Jamaica*, and the other warm Parts of *America*; where it twines round whatever Plants or Trees it grows near, and rises seven or eight Feet high, having tough woody Stems. The Leaves are like those of the common Nettle, and the whole Plant is co-

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ver'd with burning Spines, like those of the Nettle; which renders it very unpleasant to handle.

The second Sort was found by the late Dr. *Houssoun*, at *Campechy*, from whence he sent the Seeds.

As these Plants are of no great Beauty, they are seldom preserv'd in this Country, except in some Botanic Gardens, for the sake of Variety. They are propagated by Seeds, which must be sown on an Hot-bed early in the Spring; and must afterward be transplanted into Pots, and plunged into an Hot-bed of Tanners Bark, and treated in the same manner as the *Dioscorea*; with which Management they will thrive very well.

TRAGOPOGON, Goats-beard.

The Characters are;

It is a Plant with a semisofsculous Flower, consisting of many Half-florets: these, with the Embryoes, are included in one common many-leav'd Flower-cup, which is not scaly, as in Scorzonera; but the Segments are stretched out above the Florets: the Embryoes afterward become oblong Seeds inclos'd in Covers or Coats; and have a thick Down like a Beard adhering to them.

The Species are;

1. *TRAGOPOGON pratense luteum minus. C. B. P.* Small meadow Goats-beard, with a yellow Flower, commonly call'd Go-to bed-at-noon.

2. *TRAGOPOGON purpureo-caeruleum, porri folio; quod Artifi vulgo. C. B. P.* Goats-beard with a Leaf like Leeks, and a purple-blue Flower, commonly call'd Salsaff, or Salsafy.

3. *TRAGOPOGON alter, gramineo folio, suave rubens. Col.* Another Goats-beard, with a grassy Leaf, and soft-red Flowers.

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4. *TRAGOPOGON pratense luteum majus*. C. B. P. Greater yellow Goats-beard.

5. *TRAGOPOGON purpureo-cæruleum crocifolium*. C. B. P. Blue Goats-beard, with a Saffron-leaf.

6. *TRAGOPOGON hirsutum*. C. B. P. Hairy Goats-beard.

7. *TRAGOPOGON folio oblongo sinuato*. C. B. P. Goats-beard with an oblong sinuated Leaf.

The first Sort here mention'd grows wild in moist Meadows in divers Parts of *England*; and in *May*, when the Stems begin to advance, they are by many People gather'd to boil, and are by some preferr'd to *Asparagus*: but the Stems of this small Sort, being very slender, are not near so valuable as those of the large yellow Sort, or that with blue Flowers, commonly call'd *Salsafy*; therefore whoever is desirous to cultivate these Plants in Gardens, for the sake of their Shoots, should always make choice of one of those two Sorts; because their Stems are not only larger, but they are much tenderer, and better for the Purpose of boiling.

The second Sort was formerly more in Esteem than at present; this was brought from *Italy*, and cultivated in Gardens for Kitchen-use, the Roots being by some People greatly valued: but of late there is but little cultivated for the Markets; tho' there are several Gentlemen who preserve it in Gardens to supply their Tables.

The third, fourth, fifth, sixth, and seventh Sorts are by some preserv'd for the Variety of their Flowers.

These Plants are propagated from Seeds, which should be sown in the Spring upon an open Spot of Ground, in Rows about nine or ten Inches distant; and when the Plants are come up, they should be hoed out,

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leaving them about six Inches asunder in the Rows: the Weeds should also be carefully hoed down as they are produc'd, otherwise they will soon overbear the Plants, and spoil them. This is the only Culture they require; and if the Soil be light, and not too dry, they will make large Plants before Winter; at which time the *Salsafy*, whose Roots are eaten in Winter, will be fit for Use, and may be taken up any time after their Leaves are decay'd; but when they begin to shoot again, they will be sticky, and not fit for Use; but many Persons cultivate this Sort for the Shoots, which they boil and eat after the manner of *Asparagus*; for this Sort, producing strong Shoots, is more valuable than the yellow Sort.

The common yellow Sort, whose Shoots are sold in the Market, will be fit for Use in *April* or *May*, according to the Forwardness of the Season: the best time to cut them is, when their Stems are about four Inches long; for if they stand too long, they are never so tender as those which are cut while young.

Some People, in cultivating these Plants, sow their Seeds in Beds pretty close; and when the Plants come up, they transplant them out in Rows at the before-mention'd Distance; but as they always form a Tap-root, which abounds with a milky Juice, so when the extreme Part of their Roots is broken by transplanting, they seldom thrive well afterward; therefore it is by far the better way to make shallow Drills in the Ground, and scatter the Seeds therein, as before directed, whereby the Rows will be at a due Distance; and there will be nothing more to do than to hoe out the Plants where they are too thick in the Rows, which will be much less

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Trouble than the other Method of transplanting, and the Plants will be much larger and fairer.

TRAGOSELINUM, Burnet-faxifrage.

The Characters are ;

It hath an umbellated rose-shaped Flower, composed of five unequal heart-shaped Petals, which are plac'd circularly, and rest on the Empalement ; which afterward becomes a Fruit, compos'd of two oblong streaked Seeds.

The Species are ;

1. TRAGOSELINUM *majus, umbellula candida. Inst. R. H.* Greater Burnet-faxifrage, with a white Umbel.
2. TRAGOSELINUM *majus, umbellula rubente. Inst. R. H.* Greater Burnet-faxifrage, with a red Umbel.
3. TRAGOSELINUM *alterum minus. Inst. R. H.* Lesser round-leav'd Burnet-faxifrage.
4. TRAGOSELINUM *minus. Inst. R. H.* Small Burnet-faxifrage.
5. TRAGOSELINUM *radice nigra, Germanicum. Jussieu.* German Burnet-faxifrage, with a black Root.
6. TRAGOSELINUM *Austriacum, foliis profundissime incis. Boerb.* Austrian Burnet-faxifrage, with Leaves very deeply cut.
7. TRAGOSELINUM *Creticum maximum villosum, flore albo. Tourn. Cor.* The greatest hairy Burnet-faxifrage of Crete, with a white Flower.
8. TRAGOSELINUM *minus saxatile foetidissimum, apii folio. Tourn. Cor.* The least stinking rock Burnet-faxifrage, with a Smallage-leaf.
9. TRAGOSELINUM *Orientale laciniatum, umbella purpurascens. Tourn. Cor.* Eastern Burnet-faxifrage, with cut Leaves, and a purplish Umbel.
10. TRAGOSELINUM *Orientale laciniatum, umbella alba. Tourn. Cor.*

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Eastern cut leav'd Burnet-faxifrage, with a white Umbel.

The first Sort is directed by the College of Physicians to be used in Medicine ; but many times the Herb-women in the Markets impose on ignorant Persons two Herbs for this one ; viz. Burnet and Meadow-faxifrage ; which they sell for Burnet-faxifrage, which are two very different Plants, and of contrary Qualities. This Sort grows wild on the dry shady Banks in Kent, and in several other Parts of England.

The second Sort is a Variety of the first, from which it only differs in the Colour of the Flowers, which in this Sort are red, and in the other white.

The third Sort grows wild in some Parts of England ; but is not so common as the fourth, which is the most common Sort in the Fields near London. This fourth Sort is sometimes brought to the Markets and may be used instead of the first ; tho' it is much better to have the particular Sort ordered by the College, when it can be procured.

All the other Sorts are Strangers in this Country ; but are often preserv'd by the curious Botanists in their Gardens for Variety ; and are all of them as hardy as the common Sorts.

These Plants are propagated by Seeds, which should be sown on a shady Border of fresh Earth at Michaelmas ; for if they are sown in the Spring, they frequently miscarry, or remain a Year in the Ground, as do many of the umbelliferous Plants. In the Spring following the Plants will appear, when they should be carefully clear'd from Weeds ; and as the Plants obtain Strength, they should be thinn'd where they grow too close, leaving them five or six Inches apart. After this they will require

no other Culture, but to keep them clear from Weeds. The second Summer these Plants will flower, and produce Seeds; but if the Roots are not disturbed, they will continue several Years, and produce Seeds annually: therefore, where the Plants are design'd to remain, the Seeds should be sown in Drills, at about sixteen Inches apart; which will allow room to dig the Ground between the Rows every Winter; whereby the Roots will be greatly encourag'd, and the Weeds will be better destroyed.

TRANSPLANTING OF TREES: *Vide* Planting.

TRIBULUS, Caltrops.

The Characters are;

It hath a Flower composed of several Leaves, which are plac'd circularly, and expand in form of a Rose; out of whose Empalement rises the Pointal, which afterward becomes a turbinate Fruit, compos'd of several Parts, which have Thorns, collected into an Head; and having several Cells, in which are inclos'd oblong Seeds.

The Species are;

1. *TRIBULUS terrestris, ciceris folio, fructu aculeato.* C. B. P. Land-caltrop, with a Chick-leaf, and a prickly Fruit.

2. *TRIBULUS terrestris major Curassavicus.* Prod. Par. Bat. Greater Land American Caltrops.

3. *TRIBULUS terrestris Americanus, fructu turbinato, foliis lanuginosis.* Plum. Cat. American Land-caltrops, with a turbinate Fruit, and downy Leaves.

4. *TRIBULUS terrestris Indiæ Orientalis, foliis vicicæ subrotundis & villosis.* Inst. R. H. East-India Land-caltrops, with roundish and hairy Vetch leaves.

The first Sort is a very common Weed in the South of France, in Spain and Italy, where it grows

among Corn, and on most of the arable Land, and is very troublesome to the Feet of Cattle; for the Fruit, being armed with strong Prickles, run into the Feet of the Cattle, which walk over the Land. This is certainly the Plant which is mention'd in *Virgil's Georgics*, under the Name of *Tribulus*; tho' most of his Commentators have applied it to other Plants.

It is call'd in *English*, Caltrops, from the Form of the Fruit, which resembles those Instruments of War that were cast in the Enemies Way to annoy their Horses.

This Plant is preserv'd in several curious Gardens in *England*, for the sake of Variety. It is propagated by Seeds, which should be sown in Autumn; for those which are kept out of the Ground till Spring, commonly remain in the Ground a whole Year, before the Plants come up. These Seeds should be sown on an open Bed of fresh light Earth, where they are design'd to remain; for, as it is an annual Plant, it doth not bear transplanting very well, unless it be done when the Plants are very young. In the Spring, when the Plants come up, they should be carefully clear'd from Weeds; and where they come up too close, some of the Plants should be pulled out, to give room for the remaining Plants to grow. After this they will require no other Culture, but to keep them clear from Weeds. In *June* they will begin to flower, and their Seeds will ripen in *August* and *September*; which if permitted to scatter, the Plants will come up the following Spring, and maintain their Place, if they are not overborne with larger Weeds.

The Branches of this Plant trail on the Ground; and when the Plants are vigorous, will spread to a great

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Distance from the Root ; the Flowers come out on long Footstalks from the Division of the Branches, which are succeeded by the Fruit. These, when they are ripe, divide into several Parts ; so that, if they are not gather'd, they will soon drop off.

The other three Sorts, being Natives of hot Countries, are very tender ; so must be sown on an Hot-bed early in the Spring ; and when the Plants are come up, they must be each transplanted into a separate Pot fill'd with rich light Earth, and then plung'd into an Hot-bed of Tanners Bark, where they must be treated in the same manner as other tender Exotic Plants ; being careful to bring them forward as early as possible in the Summer ; otherwise they will not perfect their Seeds in this Country.

These are all of them annual Plants, whose Branches trail on the Ground, in the same manner as the common Sort ; but when their Roots are pretty much confin'd in the Pots, they will not grow so vigorous as when planted in the full Ground, or in very large Pots ; so will flower and fruit much earlier in the Season. The second Sort produceth large Flowers, which have an agreeable Scent.

TRICHOMANES, Maiden-hair.

There are three or four Varieties of this Plant, which grow in *Europe* ; but in *America* there are a great Number of Species, which are remarkably different from each other, as also from the *European* Kinds.

These, being of the Tribe of Ferns, are seldom preserv'd in Gardens, but where any Person is curious to collect them. Their Roots should be planted in moist shady Places, especially the *European* Sorts, which commonly grow from between the Joints of old Walls, about Wells,

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and in other very moist shady Situations : but those Sorts which are brought from hot Countries, must be planted in Pots fill'd with Rubbish, and strong Earth mix'd ; and in Winter they must be screen'd from hard Frosts ; to which if they are expos'd, it will destroy them.

The common Sort in *England* is generally sold in the Markets for the true Maiden-hair, which is a very different Plant, and not to be found in *England*, it being a Native of the South of *France*, and other warm Countries ; so is rarely brought to *England*.

TRIFOLIUM, Trefoil.

The Characters are ;

It hath a papilionaceous Flower, or resembles a papilionaceous Flower ; for it consists of the Standard ; the Wings and the Keel coming out of the Empalement, together with the Pointal, covered with its fringed Sheath ; which becomes a Capsule hidden in the Empalement, and full of Seeds, which are, for the most part, shap'd like a Kidney, adhering close to the Capsule when ripe : some of this Genus have Flowers consisting of one Leaf, resembling a papilionaceous Flower ; out of whose Empalement arises the Pointal, which afterward becomes a membranaceous Capsule hidden in the Empalement, and filled with kidney-shaped Seeds : to these Notes must be added, Leaves growing by Threes, on a common Footstalk.

The Species are ;

1. *TRIFOLIUM purpureum majus sativum, pratense simile. Raii Syn.* Greater purple manur'd Trefoil, commonly call'd Clover.

2. *TRIFOLIUM pratense purpureum vulgare. Mor. Hist.* Common meadow Trefoil, with a purple Flower, commonly call'd Honeyfuckle Trefoil.

3. *TRIFOLIUM pratense album.*
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C. B. P. White meadow Trefoil, or Dutch Clover.

4. *TRIFOLIUM arvense humile spicatum, sive Lagopus*. C. B. P. Hares-foot Trefoil.

5. *TRIFOLIUM fragiferum*. Ger. Emac. Strawberry Trefoil.

6. *TRIFOLIUM pratense luteum, capitulo lupuli, vel agrarium*. C. B. P. Hop-trefoil.

7. *TRIFOLIUM purpureum majus, foliis longioribus & angustioribus, floribus saturatioribus*. Raii Syn. The greater purple Trefoil, with longer and narrower Leaves, and deeper-colour'd Flowers.

8. *TRIFOLIUM pratense folliculatum*. C. B. P. Bladder Meadow-trefoil.

9. *TRIFOLIUM luteum lupulinum minimum*. Mor. Hist. The least yellow Hop-trefoil.

10. *TRIFOLIUM montanum, spica longissima rubente*. C. B. P. Mountain-trefoil, with a very long redish Spike.

11. *TRIFOLIUM montanum angustissimum spicatum*. C. B. P. Narrow-leav'd spiked Trefoil.

12. *TRIFOLIUM stellatum*. C. B. P. Rough starry-headed Trefoil.

13. *TRIFOLIUM lagopoides hirsutum angustifolium Hispanicum, flore ruberrimo*. Mor. Hist. Hairy narrow leav'd Hares-foot Spanish Trefoil, with a very red Flower.

14. *TRIFOLIUM Aegyptiacum, floribus albicantibus, foliis oblongis, vulgo Bersain*. Jussieu. Egyptian Trefoil, with whitish Flowers, and oblong Leaves, commonly call'd Bersain.

15. *TRIFOLIUM Creticum bituminoso simile, plane inodorum, flore purpureo*. Tourn. Cor. Trefoil of Candy, resembling the bituminous one, but without Smell, with a purple Flower.

16. *TRIFOLIUM Creticum elegan-*

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tissimum, magno fore. Tourn. Cor. The most beautiful Trefoil of Candy, with a large Flower.

17. *TRIFOLIUM amplissimum, folio subrotundo villoso, flore purpurascente*. Tourn. Cor. Trefoil with a very large roundish hairy Leaf, and a purplish Flower.

18. *TRIFOLIUM Orientale altissimum, caule fistuloso, flore albo*. Tourn. Cor. The tallest Eastern Trefoil, with an hollow Stalk, and a white Flower.

19. *TRIFOLIUM Orientale majus villosissimum, floribus flavescens*. Tourn. Cor. The greater and more hairy Eastern Trefoil, with yellowish Flowers.

20. *TRIFOLIUM clypeatum argenteum*. Alp. Exot. Silvery target-shaped Trefoil.

21. *TRIFOLIUM Apulum annuum, calyce vesicario*. Hort. Piss. Annual Trefoil of Apulia, with a bladder Empalement.

22. *TRIFOLIUM pratense hirsutum majus, flore albo sulphureo seu ochroleuco* Raii Syn. Greater hairy Meadow-trefoil, with a whitish-yellow Flower; commonly known in some Counties by the simple Name of Trefoil.

23. *TRIFOLIUM bitumen redolens*. C. B. P. Trefoil smelling of Bitumen.

24. *TRIFOLIUM bitumen redolens angustifolium ac sempervirens*. Boerh. Ind. Narrow-leav'd Trefoil smelling of Bitumen.

25. *TRIFOLIUM Africanum fruticans, flore purpurascens*. H. Amst. African shrubby Trefoil, with a purplish Flower.

The first of these Plants is greatly cultivated in England for feeding of Cattle; and is esteem'd very profitable, because the great Quantity of Cattle which this Grass will maintain, does very much enrich all clayey Lands, and

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and prepare them for Corn in two or three Years, which is the Length of Time which this Crop will continue good.

In the Choice of this Seed, that which is of a bright-yellowish Colour, a little inclining to brown, should be preferr'd ; but the Black rejected as good for little.

Ten Pounds of this Seed will be sufficient for an Acre of Ground ; for if the Plants do not come up pretty thick, it will not be worth standing. The Land in which this Seed is sown should be well plowed, and harrow'd very fine ; otherwise the Seeds will be buried too deep, and thereby lost.

The best time to sow it is about the Beginning of *August*, at which Season the autumnal Rains will bring up the Plants in a short time ; whereas when the Seeds are sown in the Spring, if it be done very early, they are many times burst with Wet and Cold ; and if it be done late, they are in Danger of miscarrying from Drought ; whereas in Autumn, when the Ground has been warm'd by the Summer's Heat, the Rains then falling do greatly promote the Vegetation of Seeds and Plants.

This Seed should be harrow'd in with Bushes ; for if it be done with a common Harrow, they will be bury'd too deep.

Most People have recommended the sowing of this Seed with several Sorts of Corn ; but if it be sown at the Season before directed, it will be much better, if sown alone ; for the Corn prevents the Growth of the Plants until it is reaped, and taken off the Ground ; so that one whole Season is lost ; and many times, if there be a great Crop of Corn upon the Ground, it spoils the Clover ; so that it is hardly worth standing ; whereas, in the Way before directed,

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the Plants will have good Root before Winter ; and in the Spring will come on much faster than that which was sown the Spring before under Corn.

About the Middle of *May* this Grass will be fit to cut ; when there should be great Care taken in making it ; for it will require a great deal more Labour and Time to dry than common Grass, and will shrink into less Compasses ; but if it be not too rank, it will make extraordinary rich Food for Cattle. The time for cutting it is when it begins to flower ; for if it stands much longer, the lower Part of the Stems will begin to dry, whereby it will make a less Quantity of Hay, and that not so well flavour'd.

Some People cut three Crops in one Year of this Grass ; but the best Way is, to cut but one in the Spring, and feed it the remaining Part of the Year ; whereby the Land will be enrich'd, and the Plants will grow much stronger.

One Acre of this Grass will feed as many Cattle as four or five Acres of common Grass : but great Care should be taken of the Cattle when they are first put into it, lest it burst them. To prevent which, some turn them in for a few Hours only at first, and so stint them as to Quantity ; and this by degrees, letting them at first be only one Hour in the Middle of the Day, when there is no Moisture upon the Grass, and so every Day suffer them to remain a longer time, until they are fully season'd to it : but great Care should be had never to turn them in to this Food in wet Weather ; or if they have been for some time accusom'd to this Food, it will be proper to turn them out at Night in wet Weather, and let them have Hay, which will prevent the ill Consequences of this

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this Food : but there are some who give Straw to their Cattle while they are feeding upon this Grass, to prevent the ill Effects of it ; which must not be given them in the Field, because they will not eat it where there is Plenty of better Food. There are others who sow Rye-grass amongst their Clover, which they let grow together, in order to prevent the ill Consequences of the Cattle feeding wholly on Clover : but this is not a commendable Way, because the Rye-grass will greatly injure the Clover in its Growth.

Where the Seeds are design'd to be sav'd, the first Crop in the Spring should be permitted to stand until the Seeds are ripe, which may be known by the Stalks and Heads changing to a brown Colour ; then it should be cut in a dry time : and when it is well dry'd, it may be hous'd until Winter, when the Seed should be thresh'd out ; but if the Seeds are wanted for immediate sowing, it may be thresh'd out before it be hous'd or stack'd ; but then it must be well dry'd, otherwise the Seeds will not quit their Husks.

It has been a great Complaint amongst the Farmers, that they could not thresh out these Seeds without great Labour and Difficulty ; which I take to be chiefly owing to their cutting the Spring Crop when it begins to flower, and to leave the second Crop for Seed, which ripens so late in Autumn, that there is not Heat enough to dry the Husks sufficiently ; whereby they are tough, and the Seeds render'd difficult to get out ; which may be intirely remedied by the leaving of the first Crop for Seed, as hath been directed.

When Cattle are fed with this Hay, the best Way is, to put it in

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Racks, otherwise they will tread a great Quantity of it down with their Feet.

This Feed is much better for most other Cattle than Milch Cows, so that these should rarely have any of it, lest it prove hurtful to them : tho' when it is dry, it is not near so injurious to any sort of Cattle as when green.

The second and third Sorts grow wild in Meadows amongst the Grass, where their Roots will abide many Years, and are cut with the Grass, and dry'd for Food : but the third Sort is cultivated in divers Parts of *England* ; and is one of the best Grasses to make a fine Sward yet known. This is commonly call'd *White Dutch Clover*.

This is an abiding Plant, whose Branches trail upon the Ground, and send out Roots from every Joint ; so that it makes the closest Sward of any of the sown Grasses ; and it is the sweetest Feed for all Sorts of Cattle yet known : therefore when Land is design'd to be laid down for Pasture, with Intent to continue so, there should always be a Quantity of the Seeds of this Plant sown with the Grass-seeds : the usual Allowance of this Seed is eight Pounds to one Acre of Land : but this should never be sown with Corn ; for if there is a Crop of Corn, the Grass will be so weak under it, as to be scarce worth standing : but such is the Covetousness of most Farmers, that they will not be prevailed on to alter their old Custom of laying down their Grounds with a Crop of Corn, though they lose twice the Value of their Corn by the Poorness of the Grass, which never will come to a good Sward, and one whole Season is also lost ; for if this Seed is sown in the Spring, there will be a
Crop

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Crop of Hay to mow by the Middle or Latter-end of *July*, and a much better After-feed for Cattle the following Autumn and Winter, than the Grass which is sown with Corn will produce the second Year. The Seed of this Sort may also be sown with Grass-seeds in Autumn, in the manner before directed for the common red Clover: and this autumnal Sowing, if the Seeds grow kindly, will afford a good early Crop of Hay the following Spring; and if, after the Hay is taken off the Land, the Ground is well rolled, it will cause the Clover to mat close upon the Ground, and become a thick Sward.

The Seeds of this White *Dutch* Clover is annually imported from *Flanders*, by the Way of *Holland*; from whence it received the Name of *Dutch* Clover; not that it is more a Native of that Country than of *England*; for it is very common in moist Pastures in every County in *England*; but the Seeds were never collected for sowing here till of late Years; nor are there many Persons at present here, who save this Seed, altho' it may be done with the same Care as is practised for the Red Clover; therefore it should be recommended to every Farmer, who is desirous to improve his Land, carefully to keep an Acre or two of this White Clover for Seeds; which will save him the Expence of buying of the Seeds, which are often sold at a great Price; and there will be no Want of Sale for any Quantity they may have to spare.

The fourth Sort is an annual or biennial Plant, which perishes as soon as the Seeds are ripe. This grows wild in divers Parts of *England* amongst Corn, or upon other arable Land; and is seldom cultivated, unless in Botanic Gardens, it being a medicinal Plant.

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The fifth and sixth Sorts also grow wild in *England*; but are often preserv'd in Botanic Gardens for Variety. The fifth Sort produces Heads very like a Strawberry, from whence it had its Name; and the sixth Sort has Heads very like Hops, for which Diversity they are sometimes cultivated in Gardens; the sixth Sort is also cultivated in the Fields for feeding of Cattle: this is generally known under the Title of Hop-trefoil; but the Seedsmen also sell the Seeds for Trefoil, Nonsuch, and Hop-trefoil; so that they make no Distinction between these three Sorts: and if either is required, they make no Scruple of selling the Seeds they have by them; but the twenty-second Sort is what was usually sown by this Name, and is so now in some Countries: this is a much stronger Plant than the other, being in Size equal to the Red Clover, and of as short Duration. Of the Hop-clover there are two Sorts; one of them is a much larger Plant than the other; so is much preferable for Feed: the Country-people also sow the least Melilot, under the Title of Nonsuch; but this is a low-trailing Plant, continuing but one Year: the Seeds of this are black, so may be easily distinguished.

The seventh Sort grows wild in Pastures in many Parts of *England*, and is cut with the Hay, as is the common Trefoil; from which it differs in having longer and narrower Leaves, and the Flowers being of a deeper red Colour.

The eighth Sort grows wild in *Italy*, *Spain*, and the South of *France*; from whence the Seeds have been procur'd by some Persons who are Lovers of Botany, and preserve this Plant in their Gardens for the sake of Variety. This is an annual Plant; wherefore the Seeds should be sown

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in Autumn, where the Plants are to remain; and in the Spring they must be kept clear from Weeds, which is all the Culture they require. In *May* the Plants will flower, and their Seeds will ripen in *July*. The Branches of this Sort trail on the Ground, and the Flowers are produc'd on Pedicles, from the Divisions of the small Branches, which are of a bright-red Colour, and collected in small globular Heads.

The ninth Sort is frequently found wild on barren sandy Lands, in several Parts of *England*; but is not admitted into Gardens. This Sort has been by some Persons propos'd to be cultivated for the Improvement of barren Land; but as it is a very small Plant, and only an Annual, it is not worth the Trial; because the twenty-second Sort will thrive on any Soil where this will grow, and is a much stronger Plant; and if the Seeds are permitted to scatter in the manner I have directed, will produce a constant Supply of young Plants.

The tenth Sort grows wild in *Germany*, and several other Parts of *Europe*; but is not a Native of this Country. This Plant produces very long Spikes of redish Flowers, which make a pretty Appearance during the time they continue in Beauty. This Plant is preserv'd by the Curious in Botany for the sake of Variety; but is seldom cultivated in other Gardens.

The eleventh Sort produces very narrow Leaves, and slender Spikes of Flowers, which are of a pale-red Colour; and being very small, make but an indifferent Appearance. This is not a Native of this Country.

The twelfth Sort grows wild in the South of *France*, in *Italy* and *Sicily*; from whence the Seeds have been obtain'd by some curious Per-

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sons. This Sort producing starry Heads on the Tops of the Stalks, it is preserv'd for the sake of Variety.

The thirteenth Sort, producing very beautiful red Flowers, which make a fine Appearance, may be allowed a Place in some barren Part of the Garden, where few better Things will grow; or if the Seeds of this Kind, were preserv'd in Quantity sufficient to sow a small Field in Sight of an House, it would afford a very agreeable Prospect when in Flower; and the Grass is as proper Food for Cattle, as the common Trefoil; but this, being an annual Plant, is not so proper to cultivate in common, because it requires an annual Culture.

The fourteenth Sort is cultivated in *Egypt* for feeding of their Cattle; and also in some other Eastern Countries. The Seeds of this Sort have been brought into *Europe* by some Persons who were desirous of having it cultivated here for the same Purposes; but this, being an annual Plant also, is not so proper as the Clover, for the Reasons before given; besides, being a tall slender Plant, it is very subject to be beaten down by hard Rains, which will greatly damage it.

The fifteenth, sixteenth, seventeenth, eighteenth, and nineteenth Sorts are all of them annual Plants, which are preserv'd in some curious Botanic Gardens, for the sake of Variety; but are not cultivated for Use. The Seeds of all these annual Trefoils should be sown in Autumn, early enough for the Plants to get Strength before the Frost comes on; for when the Seeds are sown in the Spring, they frequently fail; and those Plants which arise, seldom grow to any Magnitude, and rarely perfect their Seeds well. Some of these Sorts, which are remarkable
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for the Colours of their Flowers, are worth propagating in small Patches in Paddocks; where they will afford an agreeable Variety, if they are permitted to flower.

The twentieth and twenty-first Sorts are also annual Plants, which are preserv'd in Botanic Gardens for Variety; but they are not cultivated for Use.

The twenty-second Sort is frequently found growing on chalky Lands, in several Parts of *England*; and is now cultivated in some Counties, in the same manner as the common Red Clover. This Sort will thrive much better than the Red Clover, upon dry chalky Lands; so is very proper for such Places. It will grow full as large as the Red; the Leaves and Stalks are succulent, and the Feed is full as sweet as the common Clover. The simple Title of Trefoil is usually apply'd to this Sort; though, as I before observ'd, the Seedsmen sell the Hop clover for this, whenever it is demanded.

The twenty-third, twenty-fourth, and twenty-fifth Sorts are also preserv'd in Gardens for Variety; where they are planted in Pots, and shelter'd in Winter amongst other Exotic Plants; but the twenty-third and twenty-fourth Sorts will endure the Cold of our ordinary Winters in the open Air, provided they are planted on a dry Soil, and in a warm Situation; but the twenty-fifth Sort requires to be shelter'd from severe Frost, and to have as much free Air as possible in mild Weather.

These Plants may be propagated either from Seeds, or by planting Cuttings of them in the Spring, upon a Bed of rich light Earth, observing to water and shade them until they have taken Root; after which they must be carefully clear'd from Weeds during the Sum-

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mer-season; and in *August* some of the Plants should be taken up, and planted in Pots fill'd with light sandy Earth; which in Winter should be plac'd under a common Hot-bed-frame, where they may have Air in mild Weather; but in frosty Weather may be shelter'd with Glasses, &c. If they are propagated from Seeds, these should be sown toward the Latter-end of *March* upon a Bed of light Earth; and when the Plants are come up, they must be carefully clear'd from Weeds, that they may not be overborne thereby; and when they are about four Inches high, they should be planted either into Pots, or the Borders where they are to remain; because if they are suffer'd to grow very rank before they are remov'd, they do not bear transplanting so well. These Plants are preserv'd in Gardens more for the sake of Variety, than any real Beauty, especially the two first; which smell so strong of Bitumen, when bruised, as scarcely to be borne without Uneasiness.

TRIOSTEOSPERMUM, Dr. Tinkar's Weed, or false Ipecacuana.

The Characters are;

It hath a tubulous Flower consisting of one Leaf, divided into five roundish Segments, and inclosed in a five-leav'd Empalement, having another Cup resting on the Embryo; which afterward becomes a roundish fleshy Fruit, inclosing three hard Seeds, which are broad at their upper Part, and narrower at Bottom.

We have but one Species of this Plant; viz.

TRIOSTEOSPERMUM *latiore folio, flore rutilo.* Hort. Elth. Broad-leav'd Triosteospermum, with a redish Flower, commonly call'd Dr. Tinkar's Weed, or false Ipecacuana.

This Plant is a Native of *New-England, Virginia*, and some other Northern

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Northern Parts of *America*; where it has been frequently us'd as an Emetic, and is commonly call'd *Ipecacuana*. One of the first Persons who brought it into Use, was Dr. *Tinkar*; from whence many of the Inhabitants have call'd it by the Name of Dr. *Tinkar's* Weed. The Leaves of this Plant greatly resemble those of the true *Ipecacuana*; but the Roots are very different: and, by the most authentic Account we have of the true Sort, it differs in Flower and Fruit from this Plant.

It grows on low marshy Grounds, near *Boston* in *New-England*, very plentifully; where the Roots are taken up every Year, and are continued in Use amongst the Inhabitants of *Boston*.

This Plant is preserv'd in several curious Gardens of *England*, and is hardy enough to thrive in the open Air; but it should be planted on a moist light Soil: for if it is on a dry Ground, there must be Care taken to water the Plants constantly in dry Weather, otherwise they will not thrive. It may be propagated by Seeds, which should be sown on a Border of light Earth, where the morning Sun only comes on it; but if these Seeds are sown in the Spring, they will remain in the Ground a whole Year, before the Plants will come up; so that during this time the Border must be constantly kept clear from Weeds; and the following Spring, when the Plants appear, they should be duly water'd in dry Weather, which will greatly promote the Growth of the Plants. They must also be constantly kept clean from Weeds; which, if permitted to grow amongst them, will soon overbear the Plants while they are young; and either quite destroy the Plants, or so much weaken

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them, that they will not recover in a long time.

The Plants may remain in this Seed-border until the *Michaelmas* following, when they should be carefully taken up, and transplanted where they are design'd to remain. Some of them should be planted in Pots, that they may be shelter'd in Winter; lest those which are in the full Ground should be destroy'd by severe Frost.

This Plant may be also propagated by parting of the Roots. The best Season for this Work is in the Spring, just before the Plants begin to shoot, which is commonly about the Middle or Latter-end of *March*: but in doing of this, the Roots must not be parted too small; for that will prevent their flowering strong. This Plant usually grows about two Feet high, and the Flowers come out from the Wings of the Leaves; which, being small, make no great Figure in a Garden. However, a few of the Plants may be allow'd a Place in some moist Wilderness-quarters, where they are not too much overshadowed by Trees; where they will thrive, and add to the Variety.

This Plant perfects its Seeds in this Country every Year; which if sown in Autumn, as soon as they are ripe, the Plants will come up the following Spring; by which means a whole Year will be saved. These seedling Plants will not flower until the third Year; and then they seldom grow so strong as the older Plants.

TRIPOLIUM. Vide After.

TRITICUM, Wheat.

The Characters are;

It hath an apetalous Flower, which is dispos'd into Spikes: each single Flower consists of many Stamina (or Threads),

Threads), which are included in a squamous Flower-cup, which hath Awns: the Pointal also rises in the Centre, which afterward becomes an oblong Seed, which is convex on one Side, but hath a Furrow on the other; is farinaceous, and inclosed by a Coat which was before the Flower-cup: these are produc'd singly, and are collected in a close Spike, being affixed to an indented Axis.

The Species are;

1. TRITICUM *hybernum aristis carens*. C. B. P. White or Red Wheat without Awns.

2. TRITICUM *spica & granis rubentibus*. Raii Syn. Red Wheat, in some Places call'd *Kentish* Wheat.

3. TRITICUM *spica & granis albis*. Raii Syn. White Wheat.

4. TRITICUM *aristis circumvallatum, granis & spica rubentibus, glumis laevibus & splendentibus*. Raii Syn. Red-ear'd bearded Wheat.

5. TRITICUM *spica villosa quadrata longiore, aristis munitum*. Hist. Ox. Cone Wheat.

6. TRITICUM *aristatum, spica maxima cinericea, glumis hirsutis*. Raii Syn. Grey Wheat, and in some Places Duckbil Wheat, and Grey Pollard.

7. TRITICUM *majus, longiore grano, glumis foliaceis incluso, seu Triticum Poloniae dictum*. Hist. Ox. Polish Wheat.

8. TRITICUM *spica multiplici*. C. B. P. Many-ear'd Wheat.

9. TRITICUM *aestivum*. C. B. P. Summer Wheat.

10. TRITICUM *spica hordei Londinensibus*. Raii Syn. Naked Barley, vulgo.

11. TRITICUM *rufum hexastichon*. C. B. P. Six-row'd Wheat.

12. TRITICUM *semine oblongo*. C. B. P. Long-grain'd Wheat.

13. TRITICUM *aristis longioribus*,

spica alba. C. B. P. White-ear'd Wheat.

I have here mention'd the several Varieties of this Grain, which have been distinguish'd by Botanists; some of which I take to be only femal Variations, and not distinct Species: but as many of them are specifically distinct, and are cultivated by the Farmers as such, I thought it would not be amiss to enumerate all the Varieties.

The six Sorts first-mention'd are what I have commonly observ'd growing in divers Parts of *England*; but the Cone Wheat is generally preferr'd, as having a larger Ear, and fuller Grain, than any other Sort: but some of the Sorts will thrive best on strong Land, and others on a light Soil; so that the great Skill of the Farmer is in adapting the Sort of Wheat which is the best for his Land.

The *Polonian* Wheat is very seldom cultivated in *England*, though some Years since it was in great Request in *Oxfordshire*, where it was much cultivated; but for what Reason it was neglected, I could never learn.

The eighth Sort is much more common in *Italy* and *Sicily* than any other; but it is seldom cultivated here. I have seen some Stalks of this Wheat with seven Ears on them; but they have frequently three or four Ears. In wet Seasons this Sort of Corn is subject to be laid down, from the Weight of the Ears being too great for the Straw to support.

The Summer Wheat was also much more cultivated in *England* some Years past, than at present. This Sort was usually sown in the Spring of the Year, at the same Season with Barley; and it generally ripen'd as soon as the Wheat which was sown in the Autumn; so that in
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very severe Winters, when the other Sorts of Wheat have been destroy'd, this Sort has been sown upon the Land, and has succeeded very well: but the Grain of this being much thinner, it doth not produce near so much Flour as many of the other Sorts; for which Reason it has been neglected of late Years.

The tenth Sort is not much cultivated at present in *England*, the Grain being thin, and the Flour of it is but coarse. This is very hardy, and will grow upon any Soil.

The six-rowed Wheat is also less common than many other Sorts in *England*. The Ears of this are but short, and have each six Rows of Grain in them. I have observ'd some Fields of this Corn in *Kent* some Years past.

The twelfth Sort is cultivated in many Parts of *England*. The Grain of this is pretty long, but not so full as that of some other Sorts; and it has a much greater Quantity of Chaff. I have seen some Fields of it in *Suffex*; and it is also much cultivated in *Wales*. The Awns of this Sort are as long as those of Rye; so that at a little Distance it may be taken for Rye while it is in Ear.

But of all the Sorts, I think the first, fourth, and fifth, are the best worth cultivating in this Country, as being very hardy, and affording a greater Quantity of Flour than the rest: though I know some Persons prefer the third to either, on account of the extreme Whiteness of its Ears. Some Persons esteem the bearded Wheat, because they think it is not so subject to Mildew as the Sorts without Awns; but of this I think there is no Certainty; for most of the Farmers near *London* prefer the coned Wheat to any other.

The Season for sowing of Wheat is in the Autumn, in moist Weather.

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In the Down-countries the Farmers begin sowing of their Wheat in *August*, if there happens Rain; so that when they are in their Harvest, if the Weather stops them, they employ their People in sowing: for if the Corn is not forward in the Autumn, so as to cover the Ground before Winter, it seldom succeeds well on those dry Lands; especially if the Spring should prove dry. But in the low strong Lands, if they get their Wheat into the Ground by the Middle of *November*, the Farmers think they are in good Season: but sometimes it so happens, from the Badness of the Season, that in many Places the Wheat is not sown till *Christmas*, or after; but this late-sown Wheat is subject to run too much to Straw, especially if the Spring should prove moist.

The usual Allowance of Seed-wheat to one Acre of Land, is three Bushels; but from repeated Experiments, it has been found, that half that Quantity is sufficient: therefore, if the Farmers have regard to their own Interest, they should save this Expence of Seed, which amounts to a considerable Article in large Farms, especially when it is to be purchas'd; which most of the skilful Farmers do, at least every other Year, by way of Change; for they find, that the Seeds continued long upon the same Land will not succeed so well, as when they procure a Change of Seeds from a distant Country. And the same is practis'd by the Husbandmen of the *Low-Countries*, who commonly procure fresh Seeds from *Sicily* every second or third Year; which they find succeed better with them, than the Seeds of their own Country. In the Choice of the Seeds, particular regard should be had to the Land upon which it grew; for if it is light Land, the Wheat which

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grew upon strong Land is the best; and so *vice versa*.

There have been some Persons in England curious enough to procure their Seed-wheat from Sicily, which has succeeded very well; but the Grain of this has prov'd too hard for our English Mills to grind, which has occasion'd their neglecting to procure their Seeds from thence; nor do I think there can be much Advantage in procuring the Seeds from Abroad, since the Lands of England are so various, as to afford as much Change of Seeds as will be necessary: and the less we purchase from Abroad, the greater will be the Saving to the Public; so that it should be the Business of skilful Farmers to want as few Seeds as possible; since, by Exchange with each other, they may so contrive, as not to part with ready Money for any Seeds.

The Produce of an Acre of Wheat is various, according to the Goodness of the Soil. In some of the shallow Down-lands, where there have been near four Bushels of Corn sown, I have known the Produce not double of the Seed: but when this is the Case, the Farmer had much better let his Land lie waste, since the Produce will not defray the Expence; so that more than the Rent of the Land is lost. And although these Sort of Crops are frequent on such Lands, yet such is the Passion for plowing among the Husbandmen at present, that if they were not restrain'd by their Landlords, they would introduce the Plough into every Field, notwithstanding they are sure to lose by it.

But although the Produce of these poor Downs is so small, as before related; yet upon good Land, where the Corn has stood thin upon the Ground, I have known eight

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Quarters reaped from an Acre, over the whole Field, and sometimes much more: and I have been inform'd by Persons of great Credit, that on good Land, which was drill'd, and manag'd with the Horse-hoe, they have had twelve Quarters from an Acre of Land; which is a great Produce: and this is with greater Certainty, if the Seasons prove bad, than can be expected by the common Husbandry.

TRIUMFETTA.

The Characters are;

It hath a Flower consisting of several Petals, which are placed circularly, and expand in form of a Rose; from whose Empalement arises the Pointal, which afterward becomes an hard spherical burry Fruit, inclosing four angular Seeds.

The Species are;

1. TRIUMFETTA *fructu echinato racemoso*. Plum. Nov. Gen. Triumfetta with a burry-branching Fruit.
2. TRIUMFETTA *fructu echinato racemoso, minor*. Millar. Smaller Triumfetta, with a burry-branching Fruit.

The first of these Plants is very common in the Island of Jamaica, and several other Parts of America; but the second Sort is more rare, being found but in few Places. The Seeds of this Kind were sent to England by Mr. Robert Millar, who discover'd the Plant on the North Side of the Island of Jamaica.

These are both very tender Plants; so must be preserv'd in the warmest Stoves, otherwise they will not live thro' the Winter in this Country. They are propagated by Seeds, which must be sown on an Hot-bed early in the Spring; and when the Plants are come up, they should be each transplanted into a separate Pot fill'd with fresh light Earth, and then plung'd into a moderate Hot bed of

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Tanners Bark, and shaded from the Sun until they have taken new Root; after which time, they must be treated in the same manner as hath been directed for other tender Exotic Plants. During the Summer-season the Plants may remain in this Hot bed; but in Autumn they must be remov'd into the Stove, and plung'd into the Bark-bed, observing to refresh them often with Water; in very cold Weather it must not be given to them in large Quantities. If the Plants live through the Winter, they will flower the following June; so will ripen their Seeds in September; but the Plants may be continued two or three Years, provided they are carefully managed.

The Flowers of these Plants are small, and of a yellow Colour, somewhat like those of Agrimony; for which the Plant has been by some ranged under that Genus. These Flowers are produc'd in Bunches at the Extremity of the Shoots; but as they are not very beautiful, they are seldom preserv'd but in such Gardens where Variety is chiefly intended.

The first of these Sorts rises to the Height of six or seven Feet, and the Stem becomes woody. Toward the Top it divides into several Branches, each of which produces a Spike, or Bunch of Flowers. The Leaves of this Sort are pretty large, and shap'd like those of the larger Malvinda.

The second Sort seldom rises more than three Feet high, and has smaller Leaves than the first. The Stem of this Sort is woody; but it doth not branch so much as the former, and is in every respect a much less Plant than that.

TUBEROSE. *Vide* Polyanthes.

TULIPA, Tulip.

The Characters are;

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It hath a Lily-flower, compos'd, for the most part, of six Leaves, shaped somewhat like a Pitcher: the Pointal, which arises in the Middle of the Flower, surrounded with Stamina, afterward becomes an oblong Fruit, which opens into three Parts, is divided into three Cells, and full of plain Seeds, which rest upon one another in a double Row: to these Marks must be added, A coated Root, with Fibres in the lower Part.

It would be to little Purpose to enumerate the several Varieties of these Flowers, which may be seen in one good Garden, since there is no End of their Numbers; and what some People may value at a considerable Rate, others reject; and as there are annually a great Quantity of new Flowers obtain'd from Breeders, those which are old, if they have not very good Properties to recommend them, are thrown out, and despis'd: I shall therefore point out the Properties of a good Tulip, according to the Characteristics of the best Florists of the present Age. 1. It should have a tall strong Stem. 2. The Flower should consist of six Leaves, three within, and three without; the former ought to be larger than the latter. 3. Their Bottom should be proportion'd to their Top, and their Upper-part should be rounded off, and not terminate in a Point. 4. These Leaves, when open'd, should neither turn inward, nor bend outward; but rather stand erect; and the Flower should be of a middling Size, neither over-large, nor too small. 5. The Stripes should be small and regular, arising from the Bottom of the Flower; for if there are any Remains of the former self-colour'd Bottom, the Flower is in Danger of losing its Stripes again. The Chives should not be yellow, but of a brown Colour. When a

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Flower has all these Properties, it is esteem'd a good one.

Tulips are generally divided into three Classes, according to their Seasons of Flowering; as *Præcoces*, or early Blowers; *Media's*, or middling Blowers; and *Serotines*, or late Blowers: but there is no Occasion for making any more Distinctions than two, *viz.* Early and Late Blowers.

The early-blowing Tulips are not near so fair, nor rise half so high, as the late ones; but are chiefly valued for appearing so early in the Spring; some of which will flower the Beginning of *February*, if planted near a Wall, Pale, Hedge, or other Shelter: and the others succeed them; so that they keep flowering until the general Season for these Flowers is come, which is toward the End of *April*.

The Roots of the early-blowing Tulips should be planted the Beginning of *September* in a warm Border, near a Wall, Pale, or Hedge; because if they are put into an open Spot of Ground, their Buds are in Danger of suffering by morning Frosts in the Spring. The Soil for these should be renew'd every Year, where People intend to have them fair. The best Soil for this Purpose is that which is taken from a light sandy Pasture, with the Turf rotted amongst it; and to this should be added a fourth Part of Sea-sand. This Mixture may be laid about ten Inches deep, which will be sufficient for these Roots, which need not be planted more than four or five Inches deep at most. The Off-sets should not be planted amongst the blowing Roots, but in a Border by themselves; where they may be planted pretty close together, especially if they are small; but these should be taken up when their Leaves decay,

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in the same manner as the blowing Roots; otherwise they would rot, if the Season should prove very wet; for these are not so hardy as the late Blowers, nor do they increase half so fast as those; so that a greater Care is requir'd to preserve the Off-sets of them.

When these Tulips come up in the Spring, the Earth upon the Surface of the Borders should be gently stirr'd, and clear'd from Weeds; and as the Buds appear, if the Season should prove very severe, it will be of great Service to cover them with Mats; for want of which many times they are blighted, and their Flowers decay before they blow; which is often injurious to their Roots, as is also the cropping of the Flowers, so soon as they are blown; because their Roots, which are form'd new every Year, are not at that time arriv'd to their full Magnitude, and are hereby depriv'd of their proper Nourishment.

If, when these Flowers are blown, the Season should prove very warm, it will be proper to shade them with Mats, &c. in the Heat of the Day; as also, if the Nights are frosty, they should be in like manner cover'd, whereby they may be preserv'd a long time in Beauty; but when their Flowers are decay'd, and their Seed-vessels begin to swell, they should be broken off just at the Top of the Stalks; because if they are permitted to feed, it will injure the Roots.

When the Leaves of these Flowers are decay'd (which will be before the late Blowers are out of Flower), their Roots should be taken up, and spread upon Mats in a shady Place to dry; after which they should be clear'd from their Filth, and put up in a dry Place, where the Vermin cannot come to them, until the Season for planting them again; being

very

very careful to preserve every Sort separate, that you may know how to dispose of them at the time for planting them again; because it is the better way to plant all the Roots of each Sort together (and not to intermix them, as is commonly practis'd in most other Kinds of Flowers); for as there are few of them which blow at the same time, so, when the several Roots of one Sort are scatter'd through a whole Border, they make but an indifferent Appearance: whereas, when twenty or thirty Roots of the same Sorts are plac'd together, they will all flower at the same time, and afford a more agreeable Prospect.

The several Sorts of these early-blowing Tulips rise to different Heights in their Stems, so that scarcely any two of them flower to an equal Height. The Duke Van Toll, being one of the first that appears in the Spring, is generally very short-stalk'd; and so the other Sorts, in proportion to their Earliness, are shorter than those which succeed them; and the late-blowing Kinds are all of them considerably longer in their Stems than any of the *Præcoces*, or early Blowers; so that when they are confusedly mix'd together, they make a very indifferent Appearance.

The late-blowing Tulips are generally obtain'd from Breeders; which is a Term apply'd to all such Flowers as are produc'd from Seeds, which are of one Self-colour, and have good Bottoms and Chives: these, in time, break into various beautiful Stripes, according to the Ground of their former Self-colour; but this must be intirely thrown off, otherwise they don't esteem a Flower well broken.

Of these Breeders there hath been a great Variety brought into Eng-

land from *Flanders* of late Years, which is the grand Nursery for most Sorts of bulbous-rooted Flowers; but there are some curious Persons who have lately obtain'd many valuable Breeders from Seed sown in *England*: and doubtless, were we as industrious to sow the Seeds of these Flowers as the People of *France* and *Flanders*, we might in a few Years have as great a Variety as is to be found in any Part of *Europe*; for altho' it is six or seven Years from the Sowing before the Flowers blow, yet, if after the first Sowing there is every Year a fresh Parcel sown, when the seven Years are expir'd, there will be constantly a Succession of Roots to flower every Year; which will reward the Expectation, and keep up the Spirit of raising: but it is the Length of Time at first, which deters most People from the Beginning of this Work.

The manner of propagating these Flowers from Seeds is as follows: You should be careful in the Choice of the Seed, without which there can be little Success expected. The best Seed is that which is saved from Breeders which have all the good Properties before related; for the Seeds of striped Flowers seldom produce any thing that is valuable.

The best Method to obtain good Seeds is, to make Choice of a Parcel of such breeding Tulip-roots as you would save Seeds from, and place them in a separate Bed from the other Breeders, in a Part of the Garden where they may be fully expos'd to the Sun, observing to plant them at least nine Inches deep; for if they are planted too shallow, their Stems are apt to decay before their Seed is perfected.

These Flowers should always be expos'd to the Weather; for if they are shaded with Mats, or any other

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Covering, it will prevent their perfecting the Seed. About the Middle of *July* (a little sooner or later, as the Summer is hotter or colder) the Seeds will be fit to gather; which may be known by the Driness of their Stalks, and the Opening of the Seed-vessels; at which time it may be cut off, and preserved in the Pods until the Season for sowing it; being careful to put it up in a dry Place, otherwise it will be subject to mould, which will render it good for little.

Having sav'd a Parcel of good Seed, about the Beginning of *September* is the best Season for sowing it; when there should be provided a Parcel of shallow Seed-pans or Boxes, which should have Holes in their Bottoms, to let the Moisture pass off: these must be fill'd with fresh sandy Earth, laying the Surface very even, upon which the Seeds should be sown as regularly as possible, that they may not lie upon each other: then there should be some of the same light sandy Earth sifted over them, about half an Inch thick. These Boxes or Pans should be plac'd where they may have the morning Sun till Eleven of the Clock, in which Situation they may remain until *October*; at which time they should be remov'd into a more open Situation, where they may enjoy the Benefit of the Sun all the Day, and be shelter'd from the North Winds, where they should remain during the Winter-season; but in the Spring, when the Plants are up, they should be again remov'd to their first Situation; and if the Season should be dry, they must be refresh'd with Water, while the Plants remain green; but as soon as their Tops begin to decay, there must be no more given them, lest it rot their tender Bulbs; therefore the Boxes should be placed

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in a shady Situation during the Summer-season; but not under the Drip of Trees.

These Plants, at their first Appearance, have very narrow grassy Leaves, very like those of Onions, and come up with bending Heads, in the same manner as they do; so that Persons who are unacquainted with them, may pull them up instead of Grass, whilst they are very young, before their Leaves are a little more expanded, which is rarely perform'd the first Year; for they seldom appear before the Middle of *March*, and they commonly decay about the Latter-end of *May*, or the Beginning of *June*, according as the Season is hotter or colder.

The Weeds and Moss should also be clear'd off from the Surface of the Earth in the Boxes, and a little fresh Earth sifted over them soon after their Leaves decay, which will be of great Service to the Roots. These Boxes should be constantly kept clear from Weeds; which if permitted to grow therein, when they are up, their Roots will be apt to draw the Bulbs out of the Ground. At *Michaelmas* they should be fresh-earth'd again; and as the Winter comes on, they must be again remov'd into the Sun as before, and treated in the same manner, until their Leaves decay in the Spring; when the Bulbs should be carefully taken up, and planted in Beds of fresh sandy Earth, which should have Tiles laid under them, to prevent the Roots from shooting downward; which they often do when there is nothing to stop them, and thereby they are destroy'd. The Earth of these Beds should be about five Inches thick upon the Tiles, which will be sufficient for nourishing these Roots while they are young.

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The Distance which these young Bulbs should be allow'd, need not be more than two Inches, nor should they be planted above two Inches deep; but toward the End of *October*, it will be proper to cover the Beds over with a little fresh Earth, about an Inch deep; which will preserve the Roots from the Frost, and prevent Moss or Weeds from growing over them. But if the Winter should be very severe, it will be proper to cover the Beds either with Mats or Peas-haulm, to prevent the Frost from entering the Ground; because these Roots are much tenderer while young, than they are after they have acquir'd Strength.

In the Spring the Surface of the Ground should be gently stirr'd, to make it clean, before the Plants come up; and if the Spring should prove dry, they must be frequently refresh'd with Water, during the time of their Growth; but this must not be given to them in great Quantities, lest it rot their tender Bulbs; and when the Leaves are decay'd, the Weeds should be taken off, and the Beds cover'd with fresh Earth; which should also be repeated again in Autumn.

In these Beds the Bulbs may remain two Years; during which time they must be constantly kept clear from Weeds, and in Spring and Autumn fresh earth'd, in the manner already directed; after which the Bulbs must be taken up, and planted into fresh Beds, at four Inches asunder, and as many deep, where they may remain two Years more; during which time they should have the same Culture as before: and after that, the Bulbs being large enough to blow, they should be taken up, and planted in fresh Beds at the usual Distance, and in the same manner as old Roots; where when they

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flower, such of them as are worthy to be preserv'd should be mark'd with Sticks; and at the Season for taking up the Bulbs, they must be separated from the others, in order to be planted as Breeders in different Beds; but you should by no means throw out the rest, until they have flower'd two or three Years; because it is impossible to judge exactly of their Value in less time: for many which at first flowering appear beautiful, will afterwards degenerate, so as to be of little Value; and others, which did not please at first, will many times improve; so that they should be preserv'd until their Worth can be well judg'd of.

In this Method many Sorts of new Breeders will be annually rais'd, from which there will always be fine Flowers broken; which, being the Produce of a Person's own Sowing, will be greatly valued, because they are not in other Hands, which is what enhances the Price of all Flowers; and it has been intirely owing to this Method of raising new Flowers, that the *Dutch* have been so famous; amongst whom the Passion for fine Tulips did some time reign so violently, that many of the Florists near *Haerlem* have often given an hundred Ducats for one single Root; which Extravagance was the Occasion of an Order being made by the *States*, to limit the utmost Price that should be afterward given for any Tulip-root, were it ever so fine.

Having thus given an Account of the Method of raising these Flowers from Seeds, I shall now proceed to the Management of these Roots which are termed Breeders, so as to have some of them every Year break out into fine Stripes.

There are some who pretend to have a Secret how to make any Sort of

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Of Breeders break into Stripes whenever they please; but this, I dare say, is without Foundation: for from many Experiments which I have made in this Kind, I never could find any Certainty of this Matter: all that can be done by Art, is, to shift the Roots every Year into fresh Earth, and a different Situation, by which Method I have had very good Success.

The Earth of these Beds should be every Year different; for although it is generally agreed, that lean hungry fresh Earth doth hasten their breaking, and cause their Stripes to be the finer, and more beautiful; yet, if they are every Year planted in the same Sort of Soil, it will not have so much Effect on them, as if they were one Year planted in one Sort of Earth, and the next Year in a very different one, as I have several times experienc'd.

The best Compost for these Roots is a third Part of fresh Earth from a good Pasture, which should have the Sward rotted with it; a third Part of Sea-sand, and the other Part sifted Lime-rubbish: these should be all mix'd together six or eight Months at least before it is us'd, and should be frequently turned, in order to mix the Parts well together. With this Mixture the Beds should be made about two Feet deep, after the following manner: After the old Earth is taken from out of the Bed to the Depth intended, then some of the fresh Earth should be put in about eighteen Inches thick: this should be levell'd exactly, and then Lines drawn each Way of the Bed, chequerwise: at six Inches Distance, upon the Centre of each Cross, should be plac'd the Tulip-roots, in an upright Position; and after having finish'd the Bed in this manner, the

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Earth must be fill'd in, so as to raise the Bed six or eight Inches higher; observing, in doing this, not to displace any of the Roots, and also to lay the Top of the Beds a little rounding, to throw off the Water.

There are many Persons who are so careless in planting their Tulip-roots, as only to dig and level the Beds well, and then with a blunt Dibble to make Holes, into which they put the Roots, and then fill up the Holes with a Rake: but this is by no means a good Method; for the Dibble, in making the Holes, presses the Earth closely on each Side, and at the Bottom, whereby the Moisture is often detain'd so long about the Roots as to rot them; besides, the Earth being hard at the Bottom of the Bulbs, they can't so easily emit their Fibres; which must certainly prejudice the Roots.

These Beds should be sunk, more or less, below the Surface, according to the Moisture or Driness of the Soil; for the Roots should be so elevated as never to have the Water stand near them long, which is very apt to rot them: so that where the Soil is very wet, it will be proper to lay some Lime-rubbish under the Earth, in order to drain off the Wet, and the Beds should be intirely rais'd above the Level of the Ground; but to prevent their falling down into the Walks, after Frost, or hard Rains, it will be proper to raise the Paths between them, either with Sea-coal Ashes or Rubbish, eight or ten Inches, which will support the Earth of the Beds; and these Paths may slope at each End from the Middle, which will cause the Water to run off as it falls. But where the Soil is dry, the Beds may be sunk eighteen or twenty Inches below the Surface; for in such Places the Beds need not

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be more than four Inches above the Surface, which will be Allowance enough for their settling.

During the Winter-season there will be no farther Care requir'd: the Roots, being planted thus deep, will be in no Danger of suffering by ordinary Frosts in Winter; but if it should prove very severe, some rotten Tan or Peas-haulm may be laid over the Beds, to keep out the Frost; but in the Spring, when their Leaves begin to appear above-ground, the Earth upon the Surface of the Beds should be stirr'd to clear it from Weeds, Moss, &c. and when the Flower-buds begin to come up, they should be guarded from Frost, otherwise they are very subject to blight and decay soon after they appear; but they need only be cover'd in such Nights when there is an Appearance of Frost; for at all other times they should have as much open Air as possible, without which they will draw up weak, and produce very small Flowers.

When these Breeders are in Flower, you should carefully examine them, to see if any of them have broken into beautiful Stripes; which if you observe, there should be a Stick put into the Ground, by every such Root, to mark them, that they may be separated from the Breeders, to plant amongst the striped Flowers the following Year: but you should carefully observe, whether they have thrown off their former Colour intirely; as also when they decay, to see if they continue beautiful to the last, and not appear smear'd over with the original Colour; in both which Cases they are very subject to go back to their old Colour the next Year. But if their Stripes are distinct and clear to the Bottom, and continue so to the last (which is what the Florists call dyeing well),

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there is no great Danger of their returning back again, as hath been by some confidently reported: for if one of these Flowers is quite broken (as it is term'd), it will never lose its Stripes; tho' sometimes they will blow much fairer than at others, and the Off-sets will be often more beautiful than the old Roots.

There is nothing more to be observ'd in the Culture of striped Flowers, than what has been directed for Breeders, excepting that these should be arch'd over with tall Hoops and Rails, that they may be shaded from the Sun in the Day-time, and protected from strong Winds, hard Rains, and frosty Mornings; otherwise the Flowers will continue but a short time in Beauty; but where these Instructions are duly followed, they may be preserv'd in Flower a full Month, which is as long as most other Flowers continue.

After the Flowers are faded, their Heads should be broken off, to prevent their seeding: for if this is not observ'd, they will not flower near so well the following Year; and this will cause their Stems to decay sooner than otherwise they would do; so that their Roots may be taken up early in *June*; for they should not remain in the Ground long after their Leaves are decay'd. In taking these Roots out of the Ground, you must be very careful not to bruise or cut them, which will endanger their rotting; and, if possible, it should be done a Day or two after Rain. These Roots must be clear'd from their old Covers, and all Sorts of Filth, and spread upon Mats in a shady Place to dry; after which they should be put up in a dry Place, where Vermin can't get to them, observing to keep every Sort separated; but they should not be kept too close from the Air, nor suffer'd

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fer'd to lie in Heaps together, lest they should mouldy; after which they commonly rot when they are planted again.

The Off-sets of these Roots, which are not large enough to produce Flowers the succeeding Year, should be also put by themselves, keeping each Sort distinct: these should be planted about a Month earlier in Autumn than the blowing Roots, in particular Beds in the Flower-nursery, where they may not be exposed to public View: but the Earth of the Beds should be prepared for them in the same manner as for larger Roots; tho' these must not be planted above five Inches deep, and may be plac'd much nearer together than those which are to flower; and in one Year most of them will become strong enough to flower, when they may be remov'd into the Flower-garden, and plac'd in the Beds amongst those of the same Kinds.

TULIPIFERA, The Tulip-tree.

The Characters are;

The Flower consists of several Leaves, which expand in such a manner, as (by some thought) to resemble a Tulip: the Pointal rises in the Centre of the Flower, surrounded by a great Number of Chives; and afterwards becomes a squamous Fruit, or Cone, growing erect: to these Marks may be added, The Leaves, for the most part, being angular, the Upper-part is hollow'd as if cut off with Scissars, terminating in two Points.

We have but one Sort of this Tree; viz.

TULIPIFERA arbor Virginiana. H. L. The Virginian Tulip-tree.

This Tree is very common in America, where it grows to a great Magnitude; but in England there are at present very few of them which have arriv'd to any considera-

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ble Stature. This Tree was formerly kept in Pots and Tubs, and housed in Winter with great Care; in which Management the Plants made but poor Progress, nor would ever have produced Flowers. But about sixty Years ago there was one of these Trees planted out in a Wilderness in the Gardens of the Right Hon. the Earl of *Peterborough* at *Parsons-Green*, near *Fulham*; which soon convinc'd the Curious of their Mistake in the Culture of this Tree, by the great Progress it made; and in a few Years after it produced Flowers. This Tree is yet standing, and annually produces a great Quantity of Flowers; tho' some of the Branches begin to decay, which perhaps may have been occasion'd by its being too closely surrounded with other Trees; whose Roots are so much entangled with those of this Tree, that they draw the Nourishment of the Ground from it. In some Years this Tree produces Cones; but they have not ever been perfected, so as to contain good Seeds.

There are some other Trees of this kind which have produced Flowers several Years; tho' there are not many of them very large; the biggest I have seen (excepting that at *Parsons-green*) is not more than 35 or 40 Feet high; whereas Lord *Peterborough's* is upwards of 60 Feet high, and is proportionably large in the Trunk; but this has a naked Body near forty Feet high, all the Branches growing near the Top of the Tree; which might be occasioned by being so closely surrounded with other Trees; for I have observed, where ever they have a more open Situation, they are subject to extend their Branches, and do not aspire upward very much; tho' they generally have one upright Shoot

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Shoot in the Middle, much after the Nature of the Plane-tree, whose manner of Growth is very like that of this Tree.

The Flowers which these Trees produce, are by no means like those of the Tulip; tho' many Persons have been so incurious as to imagine them so, especially the Inhabitants of *America*, who first gave the Name of *Tulip-tree* unto this Plant; by which Name it has been since call'd by the Inhabitants of *Europe*, who received it from them with the Plants, many Years since; but I have not heard, that any of these Trees have flower'd in any Part of *Europe*, except in *England*.

Mr. *Catesby*, in his *Natural History of Carolina*, &c. says, There are some of these Trees in *America*, which are thirty Feet in Circumference; that the Boughs are very unequal and irregular, making several Bends or Elbows, which render the Trees distinguishable at a great Distance, even when they have no Leaves upon them. They are found in most Parts of the Northern Continent of *America*, from the Cape of *Florida* to *New-England*, where the Timber is of great Use.

This Tree may be propagated from Seeds, which are often brought from *America* in the Cones: these should be taken out in the Spring, and sown in Pots or Boxes fill'd with fresh light Earth, and plac'd upon a moderate Hot-bed, which should be cover'd only with Mats, and not have Glasses over them, because the Glasses will cause the Earth to dry too fast, and thereby spoil the Seeds.

These Pots should be frequently refresh'd with Water; and when the Plants are come up, they should be plac'd in a shady Situation during the Summer season; but in Winter

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they must be put into a Frame, where they may enjoy the open Air in mild Weather, but must be shelter'd from Frost.

In the following Spring the Plants should be taken up, and each planted in a separate small Pot fill'd with fresh light Earth; and if these Pots are plung'd into a moderate Hot-bed, under Mats, it will promote their Rooting. In Summer these Plants must be remov'd into the Shade, and in Winter into a Frame, as before: after this manner they may be treated three or four Years, until they have acquir'd Strength; when they may be turn'd out of the Pots in the Spring, and planted where they are to remain, which should always be near the Shelter of other Trees; where they will grow much better than in an open Situation, provided they are not too much crouded or overhung by large Trees.

There are some People who propagate this Tree by Layers; but they are commonly two or three Years before they take Root, and seldom make such strait Trees as those rais'd from Seeds; though indeed they will produce Flowers sooner, as is always the Case with stunted Plants.

This Tree should be planted on a light loamy Soil, not too dry; on which it will thrive much better than upon a strong Clay, or a dry gravelly Ground; for in *America* they are chiefly found upon a moist light Soil, where they will grow to a prodigious Size: tho' it will not be proper to plant these Trees in a Soil which is too moist, in *England*; because it might endanger the rotting of the Fibres of the Roots, by the Moisture continuing too long about them; especially if the Bottom be a Clay, or a strong Loam, which will detain the Wet.

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TURKS CAP. *Vide* *Lilium flore reflexo.*

TURKY-WHEAT. *Vide* Mays.

TURNEP. *Vide* Rapa.

TURNERA.

The Characters are ;

It hath a funnel-shap'd Flower, consisting of five Leaves, which are fastened to the Calyx, which is monopetalous, and divided into five Parts at the Top : under the Flower-cup there are two Leaves, which join at the Bottom, and surround the Cup : from the Centre of the Flower-cup arises the Pointal, which is divided into three Parts to the Bottom, and surrounded by five Stamina : this Pointal afterward becomes an almost spherical Fruit, which is divided into three Parts, and filled with roundish Seeds, which are fasten'd to the Placenta by slender Threads.

The Species are ;

1. *TURNERA frutescens ulmifolia.* *Plum. Nov. Gen.* 15. Shrubby Turnera, with an Elm-leaf.

2. *TURNERA frutescens, lycopi folio.* Shrubby Turnera, with a Water-horehound-leaf.

These Plants are both of them Natives of the warm Parts of *America*. The first Species was found by Father *Plumier* in *Martinico*, who gave it the Name of *Turnera*, from *Dr. Turner*, a famous *English* Physician, who lived in *Queen Elizabeth's* Reign, and wrote an *Herbal*, in which he has chiefly figur'd and describ'd the useful Plants.

The other Species was discover'd by *Sir Hans Sloane*, who has figur'd it in his *Natural History of Jamaica*, under the following Name ; *Cissus urticae folio, flore luteo, vasculis trigonis*. But both these Sorts were observ'd by my late Friend *Dr. William Housoun*, in several Parts of *America*. These grow to the Height

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of five or six Feet, and may be trained into regular Shrubs : they both produce yellow Flowers, which come out at the Footstalks of the Leaves, and are continued for at least nine Months, which renders them worthy of a Place in the Stove.

They may easily be propagated, by sowing their Seeds on an Hot-bed early in the Spring ; and when the Plants are come up two Inches high, they must be transplanted into small Pots, and plung'd into an Hot-bed of Tanners Bark, observing to water and shade them until they have taken Root ; after which time they must be treated as hath been directed for the *Guava's* ; to which the Reader is desir'd to turn, to avoid Repetition. The Seeds of these Plants will often fall into the Pots which are placed near them in the Stove ; which will grow, and soon furnish Plants enough, after a Person is once possess'd of them. These Plants are too tender to live in the open Air in *England* : so they must be plac'd in the Bark-bed in the Stove ; where, during the Winter-season, they must be kept warm, and frequently water'd ; but in the Summer-season they must have a great Share of Air, otherwise they will draw up tender, and not produce many Flowers.

When the Plants are grown pretty large, they may be treated more hardily, by placing them in the dry Stove ; where, if they are kept in a moderate Degree of Heat, they will thrive and flower very well. Those who would save the Seeds of these Plants, must watch them carefully ; because, when they are ripe, they soon scatter, if they are not gathered.

TURNSOLE. *Vide* *Heliotropium*.

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TURRITIS, Tower-mustard.

The Characters are;

The Flower consists of four Leaves, which expand in form of a Cross; out of whose Empalement rises the Pointal, which afterward becomes a long smooth Pod, which grows for the most part upright, and opens into two Parts, in each of which are contain'd many smooth Seeds.

The Species are;

1. *TURRITIS vulgaris*. J. B. Common Tower-mustard.

2. *TURRITIS foliis inferioribus cichoraceis, ceteris persiliata*. Tourn. Tower mustard with its Under-leaves like those of Cichory, and its Upper-leaves like Thorough-wax.

3. *TURRITIS muralis minor*. Pet. H. B. Wall-cress, or Tower-mustard, with Daisy-leaves.

4. *TURRITIS leucos folio*. Tourn. Tower mustard with a Stock-gilliflower leaf.

3. *TURRITIS annua verna, flore purpurascens*. Inst. R. H. Spring annual Tower-mustard, with a purple Flower.

The four Sorts first-mention'd have but little Beauty; so are seldom preserv'd but in Gardens of Botany, for Variety; but the fifth Sort makes a pretty Appearance early in the Spring. This seldom grows more than four Inches high, producing purple Flowers at the Top, shap'd like those of the Hesperis. If the Seeds of this Plant are sown in Autumn, or are permitted to scatter when they are ripe, the Plants will abide the Winter, and flower very early in the Spring. But as the Flowers are not very large, the Seeds should be sown in Patches, in the Borders of the Flower-garden, in the same manner as the Dwarf Lychnis, Candy-tuft, Venus Looking-glass,

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&c. that there may be several Plants in each; whereby they will make a better Appearance than when they are dispers'd.

The other Sorts may be all cultivated by sowing their Seeds upon a Bed of light dry Earth in the Spring; and when the Plants are come up, they should be transplanted where they are to remain for good, observing to water them until they have taken Root; after which they will require no farther Care, but to clear them from Weeds; and the second Year they will produce Seeds, after which the Plants never continue.

TUSSILAGO, Colts-foot.

The Characters are;

It hath a radiated Flower, whose Disk consists of many Florets; but the Crown is compos'd of many Half-florets: the Embryoes are included in a multifid Flower-cup; which are afterward turn'd to downy Seeds fix'd in a Bed: to which Notes may be added, The Flowers appearing before the Leaves in Spring.

The Species are;

1. *TUSSILAGO vulgaris*. C. B. P. Common Colts-foot.

2. *TUSSILAGO Alpina rotundifolia glabra*. C. B. P. Round-leav'd smooth Colts-foot of the Alps.

The first of these Sorts is very common in watery Places in almost every Part of England, and is rarely kept in Gardens; for the Roots creep under ground, and increase so fast, that in a short time they will spread over a large Spot of Ground.

The second Sort grows wild upon the Alps, from whence it has been transplanted into some curious Botanic Gardens for the sake of Variety: the Flowers of this are purple, and those of the common Sort are yellow.



VACCARIA. *Vide* Lychnis.

VACCINIUM, The Bilberry, Whortleberry, or Cranberry.

The Characters are ;

The Flower is of one Leaf, and shaped like a Pitcher, having a small permanent Empalement : the Germen arises from the Bottom of the Empalement, attended by eight Stamina, each sustaining a forked Summit : the Germen afterward becomes a soft globular umbilicated Berry, having four Cells inclosing small Seeds.

The Species are ;

1. **VACCINIUM caule angulato, foliis serratis annuis.** *Lin. Flor.* Common Black-whorts, or Bilberries.

2. **VACCINIUM foliis perennantibus, obverse ovatis.** *Lin. Flor.* Evergreen Red-whorts, or Whortleberries.

3. **VACCINIUM ramis filiformibus repentibus, foliis ovatis perennantibus.** *Lin. Flor.* Cranberries, or Bog-whorts.

The first Sort grows very common upon large wild Heaths, in many Parts of *England* ; but is never cultivated in Gardens, it being with great Difficulty transplanted ; nor will it thrive when it is remov'd thither : for from many Trials which I have made, by taking up the Plants at different Seasons, and planting them into Gardens, I could never succeed so as to preserve the Plants above two Years, and those never produc'd any Fruit ; so that it is not worth the Trouble of cultivating.

The Fruit of this Sort is gather'd by the poor Inhabitants of those

Villages which are situated in the Neighbourhood of their Growth, and carried to the Market-towns. These are by some eaten with Cream or Milk ; they are also put into Tarts, and much esteem'd by the People in the North ; but they are seldom brought to *London*. The Shrub on which these grow, rises about two Feet high, having many Stems ; which are garnish'd with oblong Leaves, shap'd like those of the Box-tree, but somewhat longer ; and are a little sawed on their Edges. The Flowers are of a greenish Colour, shap'd like those of the *Arbutus*, or Strawberry-tree, of a greenish-white Colour, changing to a dark-red toward the Top. The Fruit are about the Size of large Juniper-berries, and of a deep-purple Colour ; having a Flue upon them when they are untouch'd, like the blue Plums ; which rub off with handling.

The second Sort is of much humbler Growth, seldom rising above six or eight Inches high. The Leaves of this Sort are so like that of the Dwarf-box, as that, at a Distance, the Plants are often taken for it by Persons of Skill. This is an evergreen Shrub, which grows upon moory Ground in several Parts of the North ; but it is full as difficult to transplant into Gardens, as the other Sort ; though I have been assur'd by Persons of Credit, that they have seen this Sort planted to make Edgings to the Borders of the Gardens in *Norway* and *Sweden* ; where the Plants may grow much better from the Cold of those Climates, than they will do in *England* ; for this is a Native of very cold Countries. I have several times receiv'd Plants of this Sort from *Greenland*, by the Whale-Ships. The Berries of this Sort are red, and have a more agree-

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agreeable acid Flavour than those of the first Sort. This Fruit is frequently us'd for Tarts in several of the Northern Counties, where the Plants grow wild upon the Moors.

The third Sort produces long slender Branches, not bigger than Thread, which trail upon the mossy Bogs; so are often hid by the Moss. These Branches are thinly garnish'd with small Leaves, about the Size and Shape of those of Thyme; having their upper Surface of a shining-green Colour, but are white underneath. The Flowers are generally produc'd toward the Extremity of the Shoots, which are in Shape like those of the former Sorts; but are smaller, and of a red Colour. These grow upon long slender Footstalks, and are succeeded by round red spotted Berries, of a sharp acid Flavour; which are much esteem'd by the Inhabitants of the Places near the Bogs where they grow. Some use them for Tarts, and others eat them with Milk or Cream.

This Sort is a Native of Bogs; therefore cannot by any Art be propagated upon dry Land: but where there are natural Bogs, the Plants may be taken up carefully, preserving some of the Soil to their Roots, and transplanted into the Bogs in the Autumn: and if they are once fix'd in the Place, they will spread, and propagate themselves in great Plenty, and require no farther Care.

The two Sorts first-mention'd also propagate very fast by their creeping Roots; so that when they are fixed in a proper Soil, they will soon overspread the Ground; as the Heaths upon which they naturally grow, are generally cover'd with the Plants. The first Sort grows with the Heath, their Roots intermixing together, and frequently is found upon sandy

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Heaths in divers Parts of England; but the second Sort grows only upon moorish Land, where, by its creeping Roots, the Ground is soon cover'd with the Plants.

There are several other Species of this Genus, some of which are Natives of Spain and Portugal, others of Germany and Hungary, and some of the Northern Parts of America, from whence those large Fruit are brought to England, which are us'd by the Pastry-cooks of London, during the Winter-season, for Tarts: but as all these Sorts naturally grow upon Swamps and Bogs, they are not easy to transplant into Gardens, so as to thrive, or produce Fruit; therefore there can be little Hopes of having those Sorts in England.

VALERIANA, Valerian.

The Characters are;

The Leaves grow by Pairs, opposite upon the Stalk: the Flower consists of one Leaf, is tubulose, and divided into five Segments at the Top: these Flowers are, for the most part, collected into a sort of Umbel upon the Top of the Stalks; and are succeeded by oblong flat Seeds, which are wing'd with a soft Down.

The Species are;

1. VALERIANA *hortensis*, *Phu olusatris* folio Dioscoridis. C. B. P. Great Garden Valerian, or Phu.

2. VALERIANA *sylvestris magna aquatica*. J. B. Great wild Water Valerian.

3. VALERIANA *major sylvestris montana*. C. B. P. Great wild Mountain Valerian.

4. VALERIANA *palustris minor*. C. B. P. Small Marsh Valerian.

5. VALERIANA *rubra*. C. B. P. Red Garden Valerian.

6. VALERIANA *rubra angustifolia*. C. B. P. Narrow-leav'd red Garden Valerian.

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7. *VALERIANA marina latifolia major alba. Mor. Umb.* Great broad-leav'd white Sea Valerian.

8. *VALERIANA Alpina, foliis integris, radice repente, inodora. Raii Hist.* Alpine Valerian, with undivided Leaves; and a creeping Root, without Smell.

9. *VALERIANA Alpina prima. C. B. P.* The first Alpine Valerian of Caspar Baubin.

10. *VALERIANA Alpina altera. C. B. P.* Another Alpine Valerian of Caspar Baubin.

11. *VALERIANA Alpina, scrophulariæ folio. C. B. P.* Alpine Valerian, with a Figwort-leaf.

12. *VALERIANA montana, subrotundo folio. C. B. P.* Mountain Valerian, with a roundish Leaf.

13. *VALERIANA Alpina, nardo Celticæ similis. C. B. P.* Alpine Valerian, resembling the Celtic Spikenard.

14. *VALERIANA Cretica, flupendulæ radice. Inst. R. H.* Candy Valerian, with a Dropwort-root.

15. *VALERIANA Celtica. Inst. R. H.* Celtic Valerian, or Spikenard.

16. *VALERIANA marina angustifolia, five minor alba. Mor. Hist.* Narrow-leav'd or smaller white Sea Valerian.

17. *VALERIANA Alpina minor. C. B. P.* Smaller Alpine Valerian.

18. *VALERIANA tuberosa Imperati. Tourn. Cor.* Tuberosely rooted Valerian of Imperatus.

19. *VALERIANA Orientalis angustifolia, floribus & radice valerianæ hortensis. Tourn. Cor.* Narrow-leav'd Eastern Valerian, with the Flowers and Root of the Garden Valerian.

20. *VALERIANA Orientalis, alliariæ folio, flore albo. Tourn. Cor.* Eastern Valerian, with a Sawce-alone-leaf, and a white Flower.

21. *VALERIANA Orientalis, sisymbrii Matthioli folio. Tourn. Cor.* East-

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ern Valerian, with a Water-cress-leaf.

22. *VALERIANA Orientalis minima, flore leucophæo. Tourn. Cor.* The least Eastern Valerian, with a whitish Flower.

23. *VALERIANA maxima Pyrenæica, calicæ folio. D. Fagon. Inst. R. H.* The greatest Pyrenean Valerian, with a strange Coltsfoot-leaf.

24. *VALERIANA foliis calcitrapæ. C. B. P.* Valerian with Leaves like those of the Star-thistle.

25. *VALERIANA Lusitanica annua latifolia laciniata. Inst. R. H.* Broad jagged-leav'd annual Valerian of Portugal.

26. *VALERIANA humilis Americana, folio rotundo subtus argenteo. Plum.* Dwarf American Valerian, with a round Leaf, white underneath.

The first of these Sorts is propagated in *England* for medicinal Use; and is call'd in the Shops by the Name of *Phu*, to distinguish it from the Mountain Valerian, which is preferr'd to all the other Sorts by the modern Physicians; tho' the Roots of this first are still continu'd in some of the capital Medicines.

This Plant is propagated by parting of its Roots, either in the Spring or Autumn, which should be planted in Beds of fresh dry Earth, about eight or ten Inches asunder; for they commonly spread and multiply very fast: if the Season be dry, you must water the Plants until they have taken Root; after which they will require no farther Care, but to keep them clean from Weeds; and in Autumn, when their Leaves are decay'd, the Roots should be taken up, and dry'd for Use.

The second Sort is very common in moist Places, and by the Sides of Rivers and Ditches, in most Parts of *England*; but is rarely cultivated in Gardens.

Gardens. The Roots of this Kind, being so common near *London*, are generally sold in the Markets instead of the third Sort, which is what should always be used, as being by far the strongest, and most valuable.

The third Sort is generally found upon dry chalky Soils, in shady Places, in divers Parts of *England*; the Roots of which are much preferable to those of the same Kind which are cultivated in Gardens; as are all the Sorts of aromatic Plants, when gather'd from their native Places of Growth.

This Plant may be propagated by parting the Roots either in Spring or Autumn, as was directed for the first Sort; but you should always observe to plant them upon a dry fresh undung'd Soil; in which, tho' the Roots will not make near so great Progress, as in a rich moist Soil; yet they will be much preferable to them for Use. These Roots should also be taken up, when the Leaves decay in Autumn, and preserv'd dry until used.

The fourth Sort is very common in moist Soils, in divers Parts of *England*; but is seldom propagated in Gardens. This is plac'd among the officinal Simples, in the *College Dispensatory*; though it is rarely used in Medicine. It may be propagated in a moist Soil, by parting the Roots as the former. This Sort is Male and Female in different Plants.

The fifth, sixth, and seventh Sorts are propagated in Gardens for the Beauty of their Flowers; but they are only proper for large Gardens, being very apt to grow too large for small Places. These may be propagated by parting their Roots, in the manner before directed, or from Seeds, which should be sown in Autumn, soon after they are ripe, up-

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on a Bed of fresh light Earth; and in the Spring, when the Plants come up, they should either be transplanted into Nursery-beds, or the Borders where they are to remain for good.

Some of these Plants will flower the first Season; but the second Year they will all flower very strong. They commonly grow about three Feet high; and when the Roots are strong, they will continue flowering most Part of the Summer, which renders them worthy of a Place in large Borders, and also in Avenues, and other abject Parts of the Garden, they being very hardy, and will grow in almost any Soil or Situation; but their Roots will abide longest in a dry barren Soil; for in rich moist Places they seldom have a Continuance for a longer time than two Years.

The Seeds of these Kinds will often get into the Joints of old Walls, where they will grow and abide many Years, without any Care or Culture, and produce Flowers most Part of the Summer; and in such a Situation they will endure all Weathers, without the least Injury: these Plants are never used in Medicine.

The eighth, ninth, tenth, eleventh, and seventeenth Sorts grow on the *Alps*; from whence they have been procured by some curious Botanists, and are preserved in their Gardens for Variety: these are abiding Plants, which may be propagated by parting of their Roots. The best time to remove these Plants, and part their Roots, is soon after *Michaelmas*, when their Leaves decay, that they may have good Rooting in the Ground before the dry Weather comes on in the Spring; otherwise they will not flower strong the following Summer. All these Sorts should be planted on a strong loamy Soil,

Soil, and in a shady Situation; where they will thrive much better than in a light Earth, and an open Situation; in which they will not live, unless they are duly watered in dry Weather.

The twelfth Sort has been found on the Mountains in the North of *England*; but is very common in several Parts of *Germany*, as also on the *Alps*, and *Pyrenean* Mountains.

The fourteenth Sort grows in several Islands of the *Archipelago*, and also in *Liguria*: it is chiefly found on Hills and Mountains which are moist. The Roots of this Sort are as large as small Walnuts, which hang from Dugs after the manner of Dropwort. These Roots, when bruised, emit a Smell very like Spikenard.

The sixteenth Sort is the true Spikenard, which is used in Medicine. This grows in great Plenty amongst the Moss, on the Tops of the *Alps*, where the Snow lies a great Part of the Year. These Roots are taken up for Use in *August*, when the Leaves decay; at which time they have the strongest Scent.

The nineteenth Sort has also knobbed Roots, about as large as Walnuts, which have a Scent somewhat like Spikenard. This Sort has Leaves somewhat like those of the small Valerian; and the Flowers resemble those of the great Garden Sort, which grow about two Feet high.

All these Sorts are very hardy Plants in respect to Cold; but they will not live in a dry light Soil, and an open Situation; therefore whoever is inclinable to cultivate them, should plant them on a moist loamy Soil, on a North Border, where they may be intirely screened from the Sun; and in very dry Weather they must be constantly watered,

otherwise they will not thrive. Those Sorts with knobby Roots should not be often transplanted: if they are removed every third Year, it will be often enough; but then the Ground between the Roots should be every Spring gently dug to loosen it, being careful not to cut or bruise the Roots. These Plants usually flower in *June*; but they seldom produce good Seeds in *England*.

The sixteenth Sort is not very common in the *English* Gardens at present. This only differs from the Garden Valerian with red Flowers, in having narrow Leaves; therefore may be propagated in the same manner as hath been before directed for the red and white Garden Valerian. It will also propagate itself by Seeds, if they are permitted to scatter in a shady Situation, where the Plants will come up without any Care, and may be transplanted into large Borders, where they will make an agreeable Variety, and continue a long time in Flower.

The nineteenth, twentieth, twenty-first, and twenty-second Sorts were discovered by Dr. *Tournefort* in the *Levant*, from whence their Seeds were sent to *Paris*. These are also hardy Plants, which will live in the open Air; and should have a shady Situation, and be planted on a moist light Soil.

The twenty-third Sort is a Native of the *Pyrenean* Mountains; but is preserved in the Gardens of the Curious in Botany, for the sake of Variety. This, being a biennial Plant, must be permitted to scatter its Seeds, for a Supply of young Plants. This Plant should have a moist Soil, and a shady Situation; where it will thrive, and produce good Seeds; but if the Seeds are not sown in Autumn, they seldom grow; so that when they scatter themselves, they generally grow

grow better, than when they are sown by Hand. This Sort rises three Feet high, and has very broad Leaves; but the Flowers, being small, make no great Appearance; and when their Seeds are ripe, the Plants frequently perish soon after.

The twenty-fourth and twenty-fifth Sorts are annual Plants; which, if once introduc'd into a Garden, will scatter their Seeds, and maintain their Situation. The Seeds of these Kinds will disperse themselves to a great Distance by the Help of the Down which adheres to them; and often grow on Walls and Buildings, where they are stinted and small; but will flower and seed, whereby they will become errant Weeds; notwithstanding they decay as soon as their Seeds are ripe. These two Sorts will grow on any Soil, or in any Situation; but they will thrive best on a moist Soil, and in a shady Situation. Their Seeds must be sown in Autumn, otherwise they seldom succeed.

The twenty-sixth Sort, being a Native of the warm Parts of *America*, is a tender Plant, and very rare in *Europe*; for the Seeds will not grow, when kept long out of the Ground; but should be sown in Tubs of Earth abroad; and when the Plants are come up, they may be brought over to *England*. This Sort must be preserved in a Stove; for it is too tender to live in the open Air in this Country. In Summer this Plant should have a large Share of free Air, by opening the Glasses of the Stove in warm Weather; and must be frequently watered; for it naturally grows on low marshy Places, and requires a large Share of Water in hot Weather; but in Winter it must be kept warm, and have but little Water in very cold Weather.

VALERIANA GRÆCA. *Vide Polemonium.*

VALERIANELLA, Corn-sallad, or Lamb's-lettuce.

The Characters are;

The Leaves grow by Pairs opposite on the Branches: the Branches are always divided into two Parts, and appear at the Tops like an Umbrella: the Flower consists of one Leaf, which is cut into many Segments, and is succeeded by one naked Seed, having no Down adhering to it; in which it differs from the Valerian.

The Species are;

1. VALERIANELLA *arvensis præcox humilis, semine compresso.* Mor. Umb. Early low Corn-sallad, with a flat Seed.

2. VALERIANELLA *arvensis præcox humilis, foliis serratis.* Tourn. Early low Corn-sallad, with serrated Leaves.

3. VALERIANELLA *arvensis serotina altior, semine turgidiore.* Mor. Umb. Taller late Corn-sallad, with a turgid Seed.

4. VALERIANELLA *semine stellato.* C. B. P. Corn-sallad with a starry Seed.

5. VALERIANELLA *cornucopioides rubra vel Indica.* Mor. Umb. Red or Indian Corn-sallad, resembling the Cornucopiæ.

6. VALERIANELLA *semine umbilicato nudo rotundo.* Mor. Umb. Corn-sallad with a round naked umbilicated Seed.

7. VALERIANELLA *semine umbilicato nudo oblongo.* Mor. Umb. Corn-sallad with an oblong naked umbilicated Seed.

8. VALERIANELLA *semine umbilicato hirsuto majore.* Mor. Umb. Corn-sallad with a larger hairy umbilicated Seed.

9. VALERIANELLA *semine umbilicato hirsuto minore.* Mor. Umb. Corn-sallad

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fallad with a smaller hairy umbilicated Seed.

10. *VALERIANELLA Cretica*, *fructu vesicario*. Tourn. Cor. Candy Corn-fallad, with a bladder'd Fruit.

11. *VALERIANELLA cornucopioides echinata*. Inst. R. H. Prickly Corn-fallad, resembling an Helmet.

12. *VALERIANELLA Orientalis*, *fructu parvo corniculato*. Tourn. Cor. Eastern Corn-fallad, with a small horned Fruit.

The three first Sorts are found wild in several Parts of *England*. The third Sort is often cultivated in Gardens, for Sallads in the Spring; though either of the three may be cultivated for the same Purpose, they being equally good. The Seeds of these Plants should be sown in Autumn, soon after they are ripe; for if they are kept till Spring, the Plants seldom come up the same Summer; the Seeds, commonly remaining in the Ground, will come up the succeeding Spring, notwithstanding the Place be dug, and sown with other Seeds, as I have often observ'd.

These Plants will grow in almost any Soil or Situation, and require no farther Care, but to keep them clear from Weeds, until they are fit for Use: they should always be cut while they are young; for when they are grown pretty large, they will become strong and bitter.

The fourth and fifth Sorts are preserv'd in Botanic Gardens for Variety; but are not of any Use: these may be propagated by sowing their Seeds in the Spring, upon a Bed of dry Earth, where they may remain to flower and seed.

The sixth, seventh, eighth, and ninth Sorts are Varieties of the common Corn-fallad, which are preserv'd in some curious Botanic Gardens for the sake of Variety. These

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are all very hardy Plants, which, if permitted to scatter their Seeds, will come up in almost any Soil or Situation; and require no other Care, but to keep them clear from Weeds. When they are not permitted to scatter their Seeds, they should be sown in Autumn; otherwise the Seeds will often lie in the Ground till the following Autumn, before they grow.

The tenth and twelfth Sorts were discover'd by Dr. *Tournefort* in the *Levant*, from whence he sent their Seeds to the Royal Garden at *Paris*; which have since been communicated to many curious Persons in *England*. These are very hardy Plants, which may be propagated by Seeds, in the same manner as the other Sorts; and if they are permitted to scatter their Seeds, will come up, and require no other Care, but to keep them clear from Weeds.

The eleventh Sort produces Tufts of red Flowers, which are shaped like an Helmet, and make a pretty Appearance, when blown: this is also an hardy Plant; and may be propagated in the same manner as the other Sorts.

VANILLA.

The Characters are;

It hath an anomalous Flower, consisting of six Leaves, five of which are placed in a circular Order; and the other, which occupies the Middle, is concave: the Empalement afterward becomes an horned soft fleshy Fruit, filled with very small Seeds.

The Species are;

1. *VANILLA flore viridi & albo, fructu nigrescente*. Plum. Nov. Gen. Vanilla with a green and white Flower, and a blackish Fruit.

2. *VANILLA flore violaceo, fructu breviori rubro*. Plum. Nov. Gen. Vanilla with a violet-colour'd Flower, and a short red Fruit.

3. *VANILLA flore albo, fructu breviori*

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viori corallino. Plum. Nov. Gen. Va-
nilla with a white Flower, and a short
coralline Fruit.

The Fruit of these Plants is call'd
by the *Spaniards*, in *America*, Vanil-
la, or Vinello; and is much used by
them to scent their Chocolate. It is
the first Species here mention'd,
which is chiefly esteem'd. This
grows plentifully in the *Bay of Cam-*
pechy, in the *West-Indies*; where
they are usually sold for about Three-
pence each Fruit, *English Money*.

The other two Sorts are found in
several Parts of *America*, where they
always grow in low marshy Places
under Trees, and fasten themselves
to the Trunks of the Trees, and are
thereby supported. The Fruit of
these Kinds are rarely used, being
of little Value; but the other Sort
is often brought into *Europe*, and
sold by the Druggists.

The Method of gathering and
preparing of this Fruit for Use is lit-
tle known to the *Europeans*, being
manufactur'd by the *Indians*, who
sell it very cheap to the *Spaniards*.
However, I shall subjoin an Account
which I received from an intelligent
Person, who had resided in the *Spa-*
nish West-Indies for some time; but
shall first describe the Plant, with its
manner of Growth, and how it may
be propagated in the warm Parts of
America.

The Plant which produces the
Fruit called Vanilla, or Banilla, by
the *Spaniards*, hath a trailing Stem,
somewhat like common Ivy; which
fastens itself to whatever Tree grows
near it, by small Fibres, which are
produc'd at every Joint, and fasten
to the Bark of the Tree, by which
the Plants are often nourish'd, when
they are cut or broken off from the
Root a considerable Height from the
Ground, in like manner as the Ivy
is often seen in *England*. The Leaves

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are as large as those of the common
Laurel, but are not quite so thick.
These are produc'd alternately at
every Joint (which are six or seven
Inches asunder), and are of a lively
green Colour on the upper Side, but
are of a paler Green underneath.
The Stem of these Plants shoots in-
to many Branches, which fasten
themselves also to the Branches of
the Trees; by which means they rise
to the Height of eighteen or twenty
Feet, and spread quite over some of
the smaller Trees, to which they are
joined. The Flowers are of a green-
ish-yellow Colour, mixed with white;
which, when fallen, are succeeded
by the Fruit, which are six or seven
Inches long.

This Sort, which is manufactur'd,
grows not only in the *Bay of Cam-*
pechy, but also at *Carthagera*, at the
Caraccas, *Honduras*, *Darien*, and
Cayan; at all which Places, the Fruit
are gather'd and preserv'd; but is
rarely found in any of the *English*
Settlements in *America* at present;
though it might be easily carried thi-
ther, and propagated; for the Shoots
of these Plants are full of Juice; so
may be easily transported; because
they will continue fresh out of the
Ground for several Months. I had
some Branches of this Plant, which
were gather'd by Mr. *Robert Millar*
at *Campechy*, and sent over between
Papers by way of Sample: these
had been at least four Months ga-
ther'd, when I receiv'd them; and
upon opening the Papers, I found
the Leaves rotten, with the Moisture
contain'd in them; and the Paper
was also perished with it; but the
Stems appear'd fresh: upon which
I planted some of them in small
Pots, and plunged them into an
Hot-bed of Tanners Bark; where
they soon put out Leaves, and sent
forth Roots from their Joints: but as
these

these Plants naturally fasten themselves to the Stems of the Trees, it is with great Difficulty they are kept alive, when they have not this Assistance: therefore whoever would preserve any of these Plants in *Euro-pe*, should plant them in Tubs of Earth, near the Stem of some vigorous *American* Tree, which requires a Stove, and can bear a great deal of Water; because the *Vanilla's* must be plentifully watered in the Summer-season, otherwise they will not thrive. They require also to be shaded from the Sun by Trees; so that if these are planted at the Foot of the *Hernandia*, or Jack-in-a-Box, whose Leaves are very large, and afford a good Shade, they will succeed better than when they are exposed in single Pots alone; and as these Plants require the same Degree of Heat in Winter, so they will agree well together.

When these Plants are design'd for Propagation in the warm Parts of *America*, there is nothing more required than to make Cuttings of about three or four Joints in Length, which should be planted close to the Stems of Trees, in low marshy Places; and to keep down other troublesome Plants; which, if permitted to grow about the Cuttings before they are well rooted, would overbear and destroy them: but after they are establish'd, and have fastened their Shoots to the Stems of the Trees, they are not in much Danger of being injured by neighbouring Plants; tho' when the Ground is kept clear from Weeds, the Plants will be much better nourish'd.

These Plants do not produce Flowers until they are grown strong; so that the Inhabitants affirm, That it is six or seven Years from the Planting to the time of their bearing Fruit: but when they begin to

flower and fruit, they continue for several Years bearing, and this without any Culture; and as it is a Commodity which bears a good Price, it is well worth cultivating in several of the *English* Settlements, especially as they will grow in moist woody Places, where the Land is not cleared from Timber.

The Method us'd to prepare the Fruit, is, when it turns of a yellow Colour, and begins to open, to gather it, and lay it in small Heaps to ferment two or three Days, in the same manner as is practis'd for the *Cocoa* or *Chocolate* Pods: then they spread them in the Sun to dry; and when they are about half-dried, they flat them with their Hands, and afterwards rub them over with the Oil of *Palma Christi*, or of the *Cocoa*: then they expose them to the Sun again to dry; and afterward they rub them over with Oil a second time; then they put them in small Bundles, covering them with the Leaves of the *Indian* Reed, to preserve them.

These Plants produce but one Crop of Fruit in a Year, which is commonly ripe in *May*, fit for gathering; for they do not let them remain on the Plants to be perfectly mature, because then they are not so fit for Use; but when they are about half changed yellow, they esteem them better for keeping, than when they are changed to a dark-brown Colour; at which time the Fruit splits, and shews a great Quantity of small Seeds, which are inclos'd within it. While the Fruit is green, it affords no remarkable Scent; but as it ripens, it emits a most grateful aromatic Odour. When the Fruit begins to open, the Birds attack them, and devour all the Seeds very greedily; but do not eat any other Part of the Fruit.

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The Fruit which are brought to Europe, are of a dark-brown Colour, about six Inches long, and scarce an Inch broad; and wrinkled on the Outside, and full of a vast Number of black Seeds like Grains of Sand, of a pleasant Smell, like Balsam of Peru.

This Fruit is only used in England, as an Ingredient in Chocolate, to which it gives a pleasant Flavour: but the Spanish Physicians in America use it in Medicine, and esteem it grateful to the Stomach and Brain, for expelling of Wind, to provoke Urine, to resist Poison, and cure the Bite of venomous Animals.

As this Plant is so easily propagated by Cuttings, it is very strange, that the Inhabitants of America should neglect to cultivate it; especially as it is an Ingredient in Chocolate, which is so much drunk all over America: but as the English have in a manner quite neglected the Culture of the Cocoa, it is no wonder they should neglect this; since the former was cultivated in great Plenty by the Spaniards in Jamaica, while that Island remain'd in their Possession; so that the English had an Example before them, if they would have followed it; whereas the Vanil was not found growing there; and therefore it is not to be supposed, that the Persons who were so indolent, as to quit the Culture of many valuable Plants then growing on the Spot, should be at the Trouble of introducing any new Plants.

VELLA, Spanish Cress.

The Characters are;

It is a Plant with a cross Flower, consisting of four Petals, included in a cylindrical four-leav'd Empalement: in the Centre of the Flower is situated the Pointal, attended by six Stamina, four of which are longer than the other

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two: the Pointal afterward becomes a globular Pod, crested at the Top, and opening in two Valves, having round Seeds inclosed.

We have but one Species of this Plant; viz.

VELLA. Lin. Hort. Cliff. Wild Spanish Cress, or, by some, Spanish wild Mustard.

This is an annual Plant, which seldom grows more than one Foot high: the Stalk divides toward the Top into several Branches, each ending in a loose Spike of Flowers, which are follow'd by round swelling Pods, having a leafy Border or Crest on the Top, which is hollow'd like an Helmet: the Pod opens with Valves, and has two Cells, which contain roundish Seeds, like those of Mustard.

It is a Native of Spain and Portugal; and by those who are curious in Botany, is preserv'd in Gardens for the sake of Variety; but as it is not beautiful, nor of any Use, it is seldom cultivated. If the Seeds of this Plant are permitted to scatter, the Plants will come up, and thrive very well; or if the Seeds are sown in the Autumn, they will succeed much better than those which are sown in the Spring: for when the Season proves dry, those Seeds which are sown in the Spring frequently lie in the Ground till the following Autumn, before the Plants appear; whereas those which are sown in the Autumn, always come up soon after, or early in the Spring; so will more certainly produce ripe Seeds. These Plants should not be transplanted; therefore the Seeds should be sown where the Plants are to remain.

VERATRUM, White Hellebore.

The Characters are;

The Flower is naked, consisting of
 4 X 4 *six*

six Leaves, which expand in form of a Rose; in the Middle of which arises the Pointal, surrounded by six Stamina, or Threads, which afterward turns to a Fruit; in which, for the most part, three membranaceous Sheaths are gather'd into a little Head, and are full of oblong Seeds, resembling a Grain of Wheat, and encompass'd, as it were, by a leafy Wing.

The Species are

1. VERATRUM *flore subviridi.*
Tourn. White Hellebore, with a greenish Flower.

2. VERATRUM *flore atro-rubente.*
Tourn. White Hellebore, with a dark-red Flower.

The first of these Plants is that which is ordered for medicinal Use, and is by much the stronger and more acrid Plant; for when both Sorts are plac'd near each other, the Snails will intirely devour the Leaves of the second Sort, when at the same time they scarcely touch those of the first. The second Sort doth also appear sooner in the Spring, and flowers near a Month before the first Sort.

These Plants are very pretty Ornaments, when planted in the Middle of open Borders of the Pleasure-garden; for if they are placed near Hedges or Walls, where generally Snails harbour, they will greatly deface the Leaves, especially of the second Sort, by eating them full of Holes; and as a great Part of the Beauty of these Plants consists in their broad-folded Leaves, so, when they are thus defac'd, the Pleasure is almost lost.

The Leaves of these Plants are very broad (especially if the Ground is good where they grow), and are plaited somewhat resembling those of the Palms; but are of a much thinner Consistence. From each Head

of the Roots is generally produc'd a Flower-stem, about three Feet high, having a Spike of Flowers about a Foot in Length at their Top. The Flowers of the first Kind, being green, make not much Appearance; but those of the second, which are of a dark-red or purple Colour, are generally preferr'd by those Persons who cultivate them in the Pleasure-garden.

They may be propagated by parting their Roots either in the Autumn, or toward the Latter-end of February, or the Beginning of March, just before they begin to shoot, and should be planted in a fresh light Soil; in which they will thrive exceedingly, and produce strong Spikes of Flowers. These Roots should not be remov'd oftener than once in three or four Years; by which time (if they like the Soil) they will be very strong, and afford many Heads to be taken off; but if they are frequently transplanted, it will prevent their increasing, and cause them to flower very weak.

You may also propagate these Plants by Seeds, which should be sown as soon as ripe, either in a Bed or Box fill'd with fresh light Earth, and the Ground kept constantly clear from Weeds. In the Spring the Plants will appear, at which time, if the Season be dry, you should now-and-then refresh them with Water, which will greatly promote their Growth; and you must carefully clear them from Weeds, which, if permitted to grow, will soon overspread and destroy these Plants while young. The Spring following, just before the Plants begin to shoot, you should prepare a Bed of fresh light Earth, and carefully take up the young Plants (observing not to break their Roots), and plant them therein about six Inches square, where they may

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may remain until they are strong enough to flower, when they should be transplanted into the Borders of the Pleasure-garden. But as these Plants seldom flower in less than four Years from Seeds, so this Method of propagating them is not very much practis'd in England.

VERBASCUM, Mullein.

The Characters are;

The Flower consists of one Leaf, which expands in a circular Form, and is cut into several Segments: out of the Centre arises the Pointal, which afterward becomes an oval-pointed Fruit, divided into two Cells, by a middle Partition, which are filled with small angular Seeds.

The Species are;

1. VERBASCUM *mas latifolium luteum*. C. B. P. Great white Mullein, High-taper, or Cows-lungwort.

2. VERBASCUM *pulverulentum*, *flore luteo parvo*. J. B. Hoary Mullein, with small yellow Flowers.

3. VERBASCUM *flore albo parvo*. J. B. White flower'd Mullein.

4. VERBASCUM *nigrum*, *flore parvo*, *apicibus purpureis*. J. B. Sage-leav'd black Mullein.

5. VERBASCUM *blattariæ foliis*, *nigrum*, *amplioribus foliis ac luteis*, *apicibus purpurascens*. Hort. L. Bat. Mullein with a dark Moth-mullein-leaf, and yellow Flowers with purplish Apices.

6. VERBASCUM *nigrum*, *folio papaveris corniculati*. C. B. P. Black Mullein, with an Horn-poppy-leaf.

7. VERBASCUM *fœmina*, *flore luteo magno*. C. B. P. Female Mullein, with a large yellow Flower.

8. VERBASCUM *angustifolium ramosum*, *flore aureo*, *folio crassiflore*. J. B. Branching narrow-leav'd Mullein, with a golden Flower, and a thicker Leaf.

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9. VERBASCUM *foliis viridibus*, *annuum*, *floribus luteis*. H. L. Annual Mullein, with green Leaves, and yellow Flowers.

10. VERBASCUM *nigrum Dioscoridis*. Lob. Icon. Black Mullein of Dioscorides.

11. VERBASCUM *Alpinum perenne nigrum*, *flore albo*, *staminibus purpureis*. H. R. Par. Black perennial Mullein of the Alps, with a white Flower, and purple Chives.

12. VERBASCUM *ramosum*, *floribus albis parvis*. Mor. H. R. Blæs. Branching Mullein, with small white Flowers.

13. VERBASCUM *Creticum spinosum frutescens*. Tourn. Cor. Shrubby and thorny Mullein of Crete.

14. VERBASCUM *Græcum fruticosum*, *folio sinuato candidissimo*. Tourn. Cor. Shrubby Mullein of Greece, with a very white indented Leaf.

15. VERBASCUM *Orientale maximum candidissimum*, *ramis candelabrum æmulantibus*. Tourn. Cor. The greatest and whitest Eastern Mullein, with Branches resembling a Candlestick.

16. VERBASCUM *Orientale*, *conyzæ folio*, *flore micante*, *e ferrugineo ad aureum colorem vergente*. Tourn. Cor. Eastern Mullein, with a Fleabane-leaf, and a shining Flower, from an iron inclining to a gold Colour.

17. VERBASCUM *Orientale*, *betonicæ folio*, *flore magno*. Tourn. Cor. Eastern Mullein, with a Betony-leaf, and a larger Flower.

18. VERBASCUM *Orientale*, *angusto oblongo folio*. Tourn. Cor. Eastern Mullein, with an oblong and narrow Leaf.

19. VERBASCUM *Orientale*, *foliis subrotundis candidissimis*. Tourn. Cor. Eastern Mullein, with roundish white Leaves.

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The four first Sorts grow wild in divers Parts of *England*, and are rarely cultivated, except in Botanic Gardens for Variety. The first Sort is that which is us'd in Medicine, which is the most common of them all, growing upon the Sides of dry Banks, in most Parts of *England*.

These may be all cultivated by sowing their Seeds in *August*, on a Bed of light Earth, in an open Situation, where the Plants will come up the succeeding Month, and will endure the Winter's Cold very well, provided they have a dry Soil. In *February* the Plants should be transplanted where they are to remain, allowing them a greater Distance; for they grow pretty tall and large: in *June* following they will flower, and their Seeds will be ripe in *July*. But notwithstanding these Plants grow wild in *England*, yet two or three of each Kind may be admitted in large Gardens, for the Variety of their hoary Leaves, together with the extreme Sweetness of their Flowers, which have a Scent somewhat like Violets.

The fifth, sixth, and seventh Sorts are not Natives of this Country, but have been obtained from abroad: the fifth was sent from *Leyden*, by the learned Dr. *Boerhaave*; but I don't know at present from whence he receiv'd it. The sixth Sort was gather'd by my ingenious Friend Mr. *Heury Hopkey*, upon *Gibraltar Hills*, from whence he sent me the Seeds; which flourish'd in the Physic-garden very well two Years, and flower'd extremely, but did not perfect Seeds; and, being a biennial Plant, is since intirely decay'd.

The seventh, eighth, ninth, tenth, eleventh, and twelfth Sorts grow wild in several Parts of *Europe*; and these are preserv'd in several Botanic

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Gardens for the sake of Variety, and are rarely admitted into other Gardens. But yet where there is room to admit of Plants which grow tall, a few of each of these Sorts should have a Place; since, by their odd Appearance, they will add to the Variety; and their Flowers, having an agreeable sweet Scent, will perfume the Air of the Garden.

The seven next mention'd Sorts were discover'd by Dr. *Tournefort* in the *Levant*, from whence he sent their Seeds to the Royal Garden at *Paris*. All these Sorts are hardy enough to thrive in the open Air in *England*, provided they are sown on a dry undung'd Soil; for when they grow on a moist Soil, their Roots are subject to rot in Winter; and if the Ground is enriched with Dung, it causes the Plants to grow so rank in Autumn, that they are in Danger of being destroyed by hard Frost.

All these Plants are propagated by Seeds, which should be sown on a Bed of fresh light Earth, in an open Situation. The best time to sow these Seeds is in Autumn, soon after they are ripe; when they will more certainly grow, than if they are sown in the Spring: and when they are sown early in the Autumn, the Plants will flower the following Summer, by which these will be a Year sav'd. These Seeds should be sown in Drills, which should be made about eighteen Inches asunder; because it will be proper to let some of the Plants remain to flower in the Seed-bed, where they will grow much stronger than those which are transplanted: when the Plants come up, they should be kept clean from Weeds; and about *Michaelmas*, some of the Plants should be carefully drawn out, where they grow too close together, which may be transplanted

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planted out into a Nursery-bed to get Strength; and afterward they may be removed, and planted about in Wilderness-quarters; where (if they are not too much overshaded by Trees) they will thrive and flower very well, and make an agreeable Variety. Those Plants which are left in the Seed-beds to flower, should be singled out to a Foot or more Distance in the Rows; otherwise they will not have room to spread.

VERBENA, Vervain.

The Characters are;

It hath a labiated Flower, consisting of one Leaf, whose Upper-lip is upright, and commonly divided into two; but the Under-lip is cut into three Parts; so that at the first Sight it appears like a Flower with five Leaves: these Flowers are each succeeded by four naked Seeds, which fill the Calyx: to which may be added, The Flowers generally grow in Spikes or Heads, but not in Whorles round the Stalks.

The Species are;

1. VERBENA *communis, cœruleo flore.* C. B. P. Common Vervain, with a blue Flower.

2. VERBENA *Lusitanica latifolia procerior.* Tourn. Taller broad-leav'd Portugal Vervain.

3. VERBENA *urticæ folio, Canadensis.* H. R. Par. Canada Nettle-leav'd Vervain.

4. VERBENA *Americana, spica multiplici, foliis urticæ angustioribus, floribus cœruleis.* Par. Bat. Prod. American Vervain, with many Spikes, narrow Nettle-leaves, and blue Flowers.

5. VERBENA *tenuifolia.* C. B. P. Narrow-leav'd Vervain.

6. VERBENA *urticæ folio longiore serrato.* Houst. American Vervain, with a longer sawed Nettle-leaf.

7. VERBENA *Bonariensis altissima, lavenderæ Canariensis spica multi-*

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plici. Hort. Elth. The tallest Vervain of *Buenos Ayres*, with many Spikes resembling the *Canary Lavender*.

8. VERBENA *Carolinensis, melissæ folio aspero.* Hort. Elth. *Carolina* Vervain, with a rough Balm-leaf.

9. VERBENA *Mexicana, trachelii folio, fructu aparines.* Hort. Elth. *Mexican* Vervain, with a Throatwort-leaf, and a Fruit like Goose-grafs.

The first Sort here mention'd is very common on the Side of Roads and Foot-paths, near Habitations; for although there is scarce any Part of *England*, in which this Plant is not found in Plenty, yet it is never found growing above a Quarter of a Mile from an Habitation; which occasion'd its being call'd *Simplers Joy*; because, where-ever they found this Plant growing, it was a sure Token of an House being near. This is rarely cultivated in Gardens; but is the Sort directed by the College of Physicians for medicinal Use; and is brought to the Markets by those who gather it in the Fields.

The next five Sorts, tho' not Natives of this Country, yet are very hardy, and will endure the sharpest of our Winters in the open Air.

These may all be propagated by sowing their Seeds on a Bed of fresh Earth in the Spring; and when the Plants come up, they should be transplanted out, or thinned so as to allow them ten or twelve Inches Distance (for they generally grow pretty large, and require to have room); after which they will require no farther Care, but to clear them from Weeds, and the second Summer they will flower and seed; which Seeds, if permitted to fall upon the Ground, will come up the succeeding Spring, without any farther Culture.

The sixth Sort was discover'd by the

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the late Dr. *William Houfoun* in *Jamaica*, from whence he sent the Seeds into *England*. This is a biennial Plant, which commonly perishes soon after it has perfected its Seeds.

The seventh Sort was brought from *Buenos Ayres*. This Plant grows to the Height of five or six Feet, or more, and produces its Flowers at the Extremity of the Branches in many slender Spikes, which are plac'd close together, somewhat like the *Canary* Lavender. These Flowers are small, and of a blue Colour.

The eighth Sort is a Native of *Carolina*. This is a much humbler Plant; seldom rising above two Feet and an half high. This produces its Flowers in Spikes like the common Sort.

The ninth Sort was brought from *Mexico*. This commonly grows about three Feet high, or more; and generally produces three Spikes from a Joint at the Extremity of the Branches. The Flowers are Male, and Female on the same Spike. The Female Flowers produce their Seeds cover'd with the Empalement, which swells into a roundish Form, so as to appear somewhat like the Seeds of Goose-grass or Clivers.

The sixth, seventh, and eighth Sorts are tender Plants, which may be propagated by Seeds, and should be sown on an Hot-bed early in the Spring; but when the Plants are come up, they must have a good Share of free Air admitted to them in warm Weather; otherwise they will draw up too weak: they must also be often refresh'd with Water. When the Plants have obtain'd some Strength, they should be transplanted on another moderate Hot-bed, observing to shade them until they have taken new Root; after which time they must have Air and Moist-

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ure in warm Weather in great Plenty; which will strengthen the Plants. About the Beginning of *June*, they should be carefully taken up with Balls of Earth to their Roots, and planted into Pots filled with fresh light Earth, and then plunged into a very moderate Hot-bed, where they should be screened from the Sun until they have taken new Root; afterward they should be enured to the open Air by degrees; for in *July* they may be remov'd out of the Hot-bed, and plac'd in a warm-shelter'd Situation, where they may remain till the Middle or Latter-end of *September*, when they must be removed into the Stove; where, if they have a moderate Degree of Warmth in Winter, and are duly supply'd with Water, the Plants may be preserv'd, and the following Summer they will produce Flowers; and if the Season proves favourable, they will perfect their Seeds in Autumn.

The eighth Sort is much more hardy than those last-mention'd, and may be sown on a Bed of light Earth in a warm Situation, about the Middle of *March*; and when the Plants are come up, they must be constantly kept clean from Weeds, until they are strong enough to transplant; when they must be carefully taken up, and some of them planted into small Pots filled with fresh light Earth, and plac'd in a shady Situation, until they have taken new Root: then they may be plac'd in an open Situation with other hardy Exotic Plants, where they may remain during the Summer-season; but in Winter they must be shelter'd from severe Frost. The other Plants may be planted in a warm Border, where they will endure the Cold of our ordinary Winters without Covering; but in hard Winters these are sometimes destroyed: for which

Reason,

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Reason, it will be proper to have some of the Plants in Pots, in order to preserve the Kind. This Sort flowers, and produces good Seeds, in this Country; but the Roots seldom continue above two or three Years.

VERGE is the Edge or Outside of a Border; but in Gardening it is generally understood to be a Slip of Grass which joins to Gravel-walks, and divides them from the Borders in the Parterre-garden.

VERONICA, Speedwell, or Fluellin.

The Characters are;

The Leaves, for the most part, grow opposite by Pairs: the Calyx consists of one Leaf, which is divided into four Parts, and expands in form of a Star: the Flower consists of one Leaf, which is, for the most part, divided into four Segments, and expands in a circular Order: when the Flower decays, the Ovary becomes a membranaceous Fruit, divided into two Cells, which are shaped like an Heart, and are filled with Seeds, which are sometimes small, and at other times large and thick.

The Species are;

1. VERONICA *mas supina* & *vulgatissima*. C. B. P. Common Male Speedwell, or Fluellin.

2. VERONICA *spicata angustifolia*. C. B. P. Narrow-leav'd spik'd Speedwell.

3. VERONICA *major latifolia erecta*. Mor. Hist. Greater broad-leav'd upright Speedwell.

4. VERONICA *multicaulis Pannonica*. Tourn. Hungarian Speedwell, bearing many Stalks or Spikes of Flowers.

5. VERONICA *spicata Cambro-Britannica, bugulae subhirsuto folio*. Raii Syn. Edit. 3. Welsh spik'd Speedwell, with an hairy Bugle-leaf.

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6. VERONICA *cærulea, trifido aut quinquesido folio*. Flor. Bat. Blue Speedwell, with a trifid or quinquefid Leaf.

7. VERONICA *Virginiana altissima, spica multiplici, floribus candidis*. Flor. Bat. Tall Virginian Speedwell, with many Spikes, and white Flowers.

8. VERONICA *spicata longifolia*. Tourn. Long-leav'd spik'd Speedwell.

9. VERONICA *petraea semper-virens*. Pon. Bald. Ever-green Rock Speedwell.

10. VERONICA *mas repens Pyrenaica, folio longiori glabro*. Schol. Bot. Male creeping Pyrenean Speedwell, with a longer smooth Leaf.

11. VERONICA *mas erecta*. C. B. P. Male upright Speedwell.

12. VERONICA *spicata minor*. C. B. P. Smaller spik'd Speedwell.

13. VERONICA *Alpina fruticans, serpylli minoris folio circinato*. Pluk. Phyt. Shrubby Speedwell of the Alps, with a round lesser Mother-of-thyme-leaf.

14. VERONICA *frutescens durior, oblongo chamædryos folio, Patavina*. Bocc. Mus. Harder shrubby Speedwell of Padua, with an oblong Germander-leaf.

15. VERONICA *Austriaca, foliis tenuissime laciniatis*. Inst. R. H. Austrian Speedwell, with Leaves finely jagged.

16. VERONICA *maxima*. Lugd. The greatest Speedwell, or false Germander.

17. VERONICA *major frutescens altera*. Mor. Hist. Another greater shrubby Speedwell, or false Germander.

18. VERONICA *supina, facie tenuicrii pratensis*. Lob. Icon. Low Speedwell, with the Face of Meadow-germander.

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19. *VERONICA longifolia Virginiana altissima, foliis ternis profunde serratis caulem amplexantibus, spica multiplici cærulea. Royen.* The tallest long-leav'd *Virginian* Speedwell, with deeply-sawed Leaves embracing the Stalks, and many Spikes of blue Flowers.

20. *VERONICA minor angustifolia ramosior & procumbens. Mor. Hist. Oxon.* Small narrow-leav'd branching and trailing Speedwell.

21. *VERONICA aquatica major, folio subrotundo. Mor. Hist.* Greater Water Speedwell, with a roundish Leaf; commonly call'd Brook-lime.

22. *VERONICA aquatica, angustiore folio. Inst. R.H.* Narrow-leav'd Water Speedwell, or Brooklime.

23. *VERONICA aquatica minor, folio subrotundo. Inst. R. H.* Lesser Water Speedwell, with a roundish Leaf.

24. *VERONICA aquatica major, folio oblongo. Mor. Hist.* Greater Water Speedwell, or Brooklime, with an oblong Leaf.

25. *VERONICA aquatica minor, folio oblongo. Mor. Hist.* Small Water Speedwell, with an oblong Leaf.

26. *VERONICA Constantinopolitana incana, chamædryos folio. Tourn. Cor.* Hoary Speedwell of *Constantinople*, with a *Germander*-leaf.

27. *VERONICA Orientalis, foliishederæ terrestriis, flore magno. Tourn. Cor.* Eastern Speedwell, with *Ground-ivy*-leaves, and a large Flower.

28. *VERONICA Orientalis erecta, gentianellæ foliis. Tourn. Cor.* Upright Eastern Speedwell, with small *Gentian*-leaves.

29. *VERONICA Orientalis elatior, gentianellæ foliis, flore majore albido. Tourn.* Taller Eastern Speedwell, with small *Gentian*-leaves, and a larger white Flower.

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30. *VERONICA Orientalis minima, foliis laciniatis. Tourn. Cor.* The least Eastern Speedwell, with jagged Leaves.

31. *VERONICA Orientalis, telephii folio. Tourn. Cor.* Eastern Speedwell, with an *Orpine*-leaf.

32. *VERONICA major frutescens altera, foliis constanter & eleganter variegatis. Boerb. Ind. alt.* The other great shrubby Speedwell, with Leaves constantly and beautifully variegated.

33. *VERONICA Americana erecta, foliis gramineis, floribus ex foliorum alis. Houst.* Upright *American* Speedwell, with *Grass*-leaves, and Flowers coming out of the Wings of the Leaves.

The first Sort grows wild in Woods, and other shady Places, in divers Parts of *England*, and is a Plant of little Beauty; but as it is the Sort which is us'd in Medicine, under the Title of *Paul's Betony*, I thought it not amiss to set it down here. This is generally brought to Market by such Persons as make it their Business to gather Herbs in the Fields to supply the same, so that it is not often cultivated in Gardens; but those who have a mind to propagate it, may do it with much Ease; for as the Branches trail upon the Ground, they push out Roots from their Joints; which Branches, being cut off, and planted, will take Root, and grow in almost any Soil or Situation.

The second, third, and fourth Sorts are very ornamental Plants in the large Borders of the Flower-garden; particularly the fourth, which produces a great Number of Spikes of beautiful blue Flowers. The several Sorts continue flowering at least two Months, and in cool moist Seasons much longer; and these Flowers are very proper to cut for

Bafins

Basins or Flower-pots to adorn Rooms in the Summer-season.

The fifth Sort is a Native of the Mountains in *Wales*, from whence it hath been transplanted into many curious Gardens. It also grows on the *Alps* and *Pyrenees*. This produces fine large Spikes of blue Flowers, and deserves a Place in every Garden.

The sixth, seventh, eighth, and ninth Sorts are Natives of warmer Countries than *England*; but are hardy enough to endure the Cold of our Winters very well, provided they are planted in a dry Soil. These are all pretty Varieties, and succeed each other in Flowering; which renders them worthy of a Place in every curious Garden. These should all be planted in the Middle of the Borders of the Pleasure-garden (except the fifth and ninth, which seldom grow above a Foot high, and so are better plac'd amongst Flowers of the same Growth), where, being intermix'd with other Flowers, they afford an agreeable Variety.

The tenth Sort grows wild upon the *Alps*, and *Pyrenean* Mountains. This is a low trailing Plant, somewhat like the first Sort; but the Leaves are longer and smoother. The Flowers of this Sort having little Beauty, the Plants are rarely cultivated but in Botanic Gardens.

The eleventh Sort is very like the second; from which it differs in having broader Leaves, and is a lower Plant.

The twelfth Sort is much smaller than the eleventh; but the Spikes of Flowers being of a fine blue Colour, and continuing long in Beauty, render it worthy of a Place in the Flower-garden.

The thirteenth Sort is a low shrubby Plant, somewhat like the

ninth; but the Leaves are smaller: there is but little Beauty in this Plant.

The fourteenth, sixteenth, seventeenth, and eighteenth Sorts are like the fourth Sort; but the Spikes of Flowers are not so beautiful: these come later to flower, and continue much longer in Beauty.

The fifteenth Sort hath fine cut Leaves, in which it differs from these last; but the Flowers are very like those of the fourteenth Sort.

The nineteenth Sort grows much taller than either of the other; the Flowers are produc'd on long Spikes, which come out many together from the Top of each Stalk, and are of a fine blue Colour. This flowers in *July*; and if the Season proves cool, the Flowers will continue most Part of *August*.

The twentieth Sort is a Plant of no great Beauty, being very like the common Speedwell with German-*mander-leaves*; so is seldom preferred in Gardens.

The twenty-first, twenty-second, twenty-third, and twenty-fourth Sorts are aquatic Plants, growing on the Sides of Ditches and Standing-waters in many Parts of *England*; so are not kept in Gardens. The twenty-first Sort is us'd in Medicine as an Antiscorbutic, and stands in the Dispensary under the Title of *Anagallis aquatica*, or *Becabunga*.

The twenty-sixth Sort hath white woolly Leaves, which are a little sawed on their Edges; the Flowers are produc'd in fine long Spikes, which are of a fine blue Colour; and the Plant doth not spread so much as many of the other Sorts; so deserves a Place in every good Garden. This flowers in *July* and *August*.

The thirtieth Sort is an humble Plant, with fine cut Leaves, and has the

the Appearance of the fifteenth Sort; but the Plant is much smaller, and the Leaves are more cut. This flowers in May.

The twenty - seventh, twenty-eighth, twenty-ninth, and thirty-first Sorts were discover'd by Dr. *Tournefort* in the *Levant*, and are rare in *England* at present. These are preserv'd in some curious Botanic Gardens for Variety; but are not so beautiful as many of the Sorts here named.

There are some more Species of this Genus, than are here enumerated; most of which are annual Plants, which have no Beauty: I have therefore omitted them, as they are seldom admitted to have a Place in Gardens.

The thirty-second Sort is preserv'd in some Gardens, for its variegated Leaves; but it is the same with the seventeenth Sort.

The last Sort is a Native of the warmest Parts of *America*; therefore is too tender to live in *England*, unless it is preserv'd in a warm Stove; but as it has little Beauty, it is rarely preserv'd in the Gardens, unless for the sake of Variety.

Most of the Sorts before-mention'd deserve to have room in large Gardens; where, if they are planted in a shady Border, they will continue a long time in Flower; and as the Sorts succeed each other, so, where they are rightly plac'd, they will make an handsome Appearance during most of the Summer-months: for some of the Sorts begin to flower in *April*, others in *May*, some in *June* and *July*, and continue great Part of *August*: and as they require but little Care to cultivate them, being extreme hardy, growing upon any Soil, or in any Situation, they better deserve room in a Garden than many other Plants, which are

more esteem'd for being rare, than for their Beauty or Use.

These Plants may all be propagated by parting their Roots, which may be done every third Year; for if they are too often parted, or divided into small Heads, they will not make any Figure; because when they have not a Number of Stems, so as to form a good Bunch, they are soon past their Beauty, and have but a mean Appearance. The best time to part these Roots is at *Michaelmas*, that they may be well rooted again before Winter; for when they are remov'd in the Spring, they seldom flower strong the same Year, especially if the Season should prove dry. Those Sorts which grow pretty tall, are very proper to plant under large Trees, in open Wilderness-quarters; but those with trailing Branches are fit for the Sides of Banks, or irregular shady Slopes, where they will make an agreeable Variety.

I cannot omit mentioning the Virtues of the common Speedwell, which have caused it to be in great Request of late. It is found an excellent Remedy for the *Gout*, and all Rheumatic Disorders. The Method is, to make a Tea of the dried Herb: the Quantity to be us'd is about a Quarter of an Ounce, from which four common Dishes of Tea may be drawn: these are to be drunk every Morning, until the Patient finds Relief. To this some add the dried Herbs of Bug-bean and Ground-pine, which they mix in equal Quantities, and make a Tea of them; from which many Persons have received great Benefit.

VIBURNUM, The Wayfaring, or Pliant Mealy-tree.

The Characters are;

The Flower consists of one Leaf, which is divided into five Parts, and expands in a circular Order; these

are collected into the Form of an Umbrella: the Ovary, which is placed in the Upper-part of the Flower, becomes a soft Berry, full of Juice, which contains one stony, compress'd, furrowed Seed.

The Species are ;

1. VIBURNUM. *Matth.* The common Viburnum, or Pliant Mealy-tree.

2. VIBURNUM *folio variegato.* The common Viburnum, with striped Leaves.

3. VIBURNUM *foliis subrotundis serratis glabris. Flor. Virg.* American Viburnum, with roundish smooth sawed Leaves, commonly called The Black Haw.

4. VIBURNUM *Americanum, amplissimo folio candidissimo, floribus in umbella candidis. Dale.* American Viburnum with large white Leaves, and white Flowers growing in an Umbel.

5. VIBURNUM *Americanum latifolium, floribus in umbella candidis, maculis rubris adspersis, ramulis tomentosiss.* Broad-leav'd American Viburnum, with white Flowers growing in an Umbel, which are spotted with red, and the Branches very woolly.

The first of these Trees is very common in divers Parts of England, particularly in *Kent*, where it grows in most of the Hedges upon the dry chalky Hills near *Gravesend*, *Rochester*, &c. in very great Plenty. But notwithstanding its being thus common, yet it deserves a Place in small Wilderness-quarters, among other flowering Trees ; where, by its mealy Leaves and Shoots, together with its large Bunches of white Flowers in the Spring, which are succeeded by red Berries in Autumn, it affords an agreeable Variety.

This Tree may be propagated either from Seeds, or by laying down

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the tender Branches ; but the former Method, being tedious, is seldom practis'd ; especially since young Plants may be taken from the Woods or Hedges, where there are many of the old Trees growing, from which a Number may soon be propagated.

The best time for laying these Branches is in Autumn, just as the Leaves begin to fall (the manner of laying them, being the same as for other hardy Trees, need not be here repeated). By the succeeding Autumn the Layers will be rooted, when you may take them off from the old Plants, and transplant them into a Nursery for two or three Years, in which they may be trained up to regular Stems and Heads, and may afterward be planted where they are to remain. This Tree commonly grows about twelve or fourteen Feet high ; but it is rarely seen above sixteen or eighteen ; so that it should be planted in Lines with such Trees as do not exceed this Growth : otherwise it will be hid thereby, and their Beauty lost.

The striped Sort may be propagated by inarching it upon the plain Sort. This is preserv'd by such as delight in variegated Plants ; but there is no great Beauty in it. These Trees seldom grow near so large as those of the plain Sort ; as is the Case of all other strip'd Plants.

The third Sort has been introduc'd into the *English* Gardens from *North-America*, and is now pretty commonly cultivated in some of the Nurseries near *London*, by the Title of Black Haw ; which is the Name it was brought by from *America*.

This is a regular growing Shrub, which rises to the Height of ten or twelve Feet : the Branches are produc'd opposite, as are also the Leaves ; which are of a deep-green Colour, and intire, having their

Edges

Edges slightly sawed. The Flowers are produc'd in small Umbels, at the Extremity of the Branches, which are white. These are succeeded by soft succulent Berries, which, when ripe, are of a dark-purple Colour.

It is very hardy, so endures the Cold of our Winters very well, and grows in any Soil; but must not be too much expos'd to strong Winds, which are apt to split down the Branches, and render the Shrubs very unsightly. This may be propagated by laying down the Branches, in the same manner as hath been directed for the common Sort.

The fourth Sort has much the Appearance of the common Viburnum; but the Leaves are larger, and are very mealy on both Sides: the Shoots are also more woolly. I receiv'd the Seeds of this Sort from *South-Carolina*, which were sent me by my late Friend Dr. *Thomas Dale*.

This Sort is hardy enough to live in the open Air in *England*, if it is planted in a warm-shelter'd Situation. It delights in a moist light Soil, in which it thrives much better than upon a dry gravelly Ground; for it grows naturally upon swampy Land in *America*. But the best way is, not to plant these into the full Ground, until they have obtain'd Strength to resist the Cold; so that when the Plants are rais'd from Seeds, they should be kept in Pots, and in Winter plac'd under a common Hot-bed-frame; where they should have as much free Air as possible in mild Weather, and only be shelter'd from hard Frost. After two Years Growth from Seeds, the Plants will be strong enough to transplant into the Ground, which should be done in the Spring of the Year; shaking the Plants out of the Pots, and preserving a Ball of Earth to their Roots, which will se-

cure the Plants from Hazard; and if the Spring should prove dry, it will be proper to water them until their Roots are well establish'd in the Ground; after which time they will require no other Care than what is usually bestow'd on other flowering Shrubs.

It may be propagated by laying down of the Branches, in the same manner as the common Viburnum; but this should not be practis'd until the Shrubs have gotten sufficient Strength; and when the Layers are laid, if the Season should prove dry, it will be of great Service in promoting their taking Root, if they are duly water'd.

The fifth Sort is very tender. The Seeds of this Kind were sent from *Campechy* by Mr. *Robert Millar*, who found the Plants growing in low marshy Places in great Plenty. This Sort rises to the Height of eight or ten Feet, and has broader Leaves than the common Sort, which are (while young) cover'd pretty thick with a soft white Down; but as the Leaves grow older, their Upper-sides are greener, and lose most of the Down. The young Branches are also very woolly; but as these grow older, it falls off. The Flowers are produc'd from the Wings of the Leaves in large Bunches, which are white; but the *Apices* or Summits are of a red Colour, which, at a small Distance, appear like Stripes in the Flowers. After the Flowers are decayed, the Fruit appears white; when ripe, turns black.

This Plant may be propagated by Seeds, which should be sown on an Hot-bed early in the Spring; and when the Plants are come up, and fit to transplant, they should be each planted into a separate small Pot fill'd with light rich Earth, and then plung'd into an Hot-bed of Tanners Bark;

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Bark ; observing to shade them from the Sun until they have taken new Root, when they should have free Air admitted to them every Day in proportion to the Warmth of the Season ; and as they are Plants which delight in low marshy Places, they must be constantly supplied with Water in hot Weather, otherwise they will not thrive. At Michaelmas they should be remov'd out of the Hot-bed, and plung'd into the Bark-bed in the Stove ; where they should be kept in a moderate Temperature of Heat, and must be frequently watered ; in which Stove they will retain their Leaves all the Year, and make considerable Progress ; so that in two Years from sowing, they will produce Flowers and Fruit.

As these Plants grow older and stronger, they may be treated more hardily ; therefore they may be placed in a dry Stove in Winter, and in the Middle of Summer may be expos'd abroad in a warm-shelter'd Situation, with other tender Exotic Plants ; observing in dry Weather to water them duly, and to shift them into other Pots, as they shall require it. With this Management they will produce their Flowers every Year, toward the End of Summer ; and if the Autumn proves very favourable, or the Plants are early remov'd into the Stove, they will perfect their Seeds very well.

This Sort may also be propagated by Layers, as the other ; but when the Shoots are laid down, it will be proper to plunge the Pots into a moderate Hot-bed of Tanners Bark, which will cause them to put out Roots much sooner than when they are expos'd abroad. The Layers, when sufficiently rooted, may be taken off, and planted into sepa-

V I

rate Pots, and treated in the same manner as the seedling Plants.

VICIA, Vetch.

The Characters are ;

It hath a papilionaceous Flower, out of whose Empalement arises the Pointal, which after-ward becomes a Pod full of roundish or angular Seeds : to which must be added, The Leaves grow as it were by Pairs, on a Middle-rib ending in a Tendril.

The Species are ;

1. VICIA *sativa vulgaris*, *semine nigro*. C. B. P. Common Vetch or Tare.

2. VICIA *sativa alba*. C. B. P. White Vetch or Tare.

3. VICIA *supina, latissimo folio non serrato*. Tourn. Low Vetch, with a broad Leaf not serrated.

4. VICIA *supina, latissimo folio serrato*. Tourn. Low Vetch, with a broad serrated Leaf.

5. VICIA *multiflora*. C. B. P. Many-flower'd Vetch.

6. VICIA *maxima dumetorum*. C. B. P. Bush or perennial Vetch.

7. VICIA *sepium, folio rotundiore acuto, semine nigro*. C. B. P. Bush Vetch, with a rounder sharp-pointed Leaf, and a black Seed.

8. VICIA *vulgaris, acutior folio, semine parvo nigro*. C. B. P. Wild Vetch, with a sharper-pointed Leaf, and a small black Seed.

9. VICIA *perennis incana multiflora*. Bot. Monsp. Hoary perennial Vetch, with many Flowers.

10. VICIA *perennis multiflora, majori flore cœruleo, ex albo mixto*. Bot. Monsp. Tufted perennial Vetch, with a large blue Flower mix'd with White.

11. VICIA *perennis multiflora incana, insularum Stœchadum*. Inst. R. H. Perennial hoary tufted Vetch of the *Stœchades*.

12. VICIA *sylvestris hirsuta incana*.

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na. C. B. P. Hoary rough wild Vetch.

13. *VICIA sylvestris incana*, major & præcox, Parisiensis, flore suave-rubente. Inst. R. H. The greater early hoary wild Vetch, with a soft red Flower.

14. *VICIA sylvatica maxima*, piffo sylvestri similis. J. B. The greatest wild Vetch, resembling wild Peas.

15. *VICIA sylvestris lutea*, filiqua hirsuta. C. B. P. Wild yellow Vetch, with hairy Pods.

16. *VICIA serotina perennis*, flore luteo, filiqua hirsuta. Inst. R. H. Late-flowering perennial Vetch, with a yellow Flower, and an hairy Pod.

17. *VICIA serotina perennis*, flore luteo, filiqua glabra. Inst. R. H. Late-flowering perennial Vetch, with a yellow Flower, and smoother Pod.

18. *VICIA sylvestris lutea*, cum galea fusca. J. B. Wild yellow Vetch, with a brown Standard.

19. *VICIA Cretica multiflora latifolia*, flore intense purpureo. Tourn. Cor. Broad-leav'd many-flower'd Vetch of Crete, with a deep-purple Flower.

20. *VICIA Orientalis multiflora incana*, angustissimo folio. Tourn. Cor. Hoary Eastern tufted Vetch, with a very narrow Leaf.

21. *VICIA verna villosissima* & incana, flore parvospicato, ex purpureo ad ianthinum vergente. Tourn. Cor. The most hairy and hoary Spring Vetch, with a small spiked Flower, from a purple to a violet Colour.

22. *VICIA multiflora spicata*, floribus albidis, calyce purpureo. Tourn. Cor. Spiked tufted Vetch, with whitish Flowers, and a purple Em-palement.

23. *VICIA Orientalis multiflora argentea*, flore variegato. Tourn. Cor. Eastern tufted silvery Vetch, with a variegated Flower.

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24. *VICIA Orientalis*, flore maximo pallescente, macula lutea notato. Tourn. Cor. Eastern Vetch, with a large pale Flower spotted with yellow.

25. *VICIA multiflora Cassubica frutescens*, lentis filiqua. Breyn. Prod. Shrubby tufted Vetch, with Pods like Lentils.

26. *VICIA sylvatica multiflora maxima*. Phyt. Brit. The greatest tufted wood Vetch.

27. *VICIA segetum*, cum filiquis plurimis hirsutis. C. B. P. Small wild Tare, with many rough Pods.

28. *VICIA segetum*, singularibus filiquis glabris. C. B. P. Corn Vetch, or fine Tare, with single smooth Pods.

29. *VICIA minima*, cum filiquis glabris. Inst. R. H. The smallest Vetch, with smooth Pods.

30. *VICIA sive Cracca*, foliis & filiquis longioribus. Bot. Monsp. Vetch with longer Leaves and Pods.

31. *VICIA minima præcox*, Parisiensium. H. R. Par. The least early Vetch, with an angular Seed.

The first of those here mention'd is cultivated in the Fields in divers Parts of England for the Seed, which is the common Food of Pigeons: the Method of cultivating them is hereafter inserted.

The second Sort is a Variety of the first, from which it only differs in the Colour of the Flowers and Seeds, which in this Kind are both white; but the Flowers of the other Kind are purple, and the Seeds are black. This may be cultivated as the former.

The third and fourth Sorts are, at present, only preserv'd in Botanic Gardens in England; tho' I believe they might be cultivated in the Fields as the common Sort, with good Success.

These

These must be sown in the Spring, as Peas; but should have a light dry Soil, and require more room than the common Sort: for the Plants are apt to spread pretty far, provided they like their Situation. They are both annual Plants, which decay soon after their Seeds are ripe. These are suppos'd to be the Bean of the antient *Greeks*.

The fifth Sort grows wild in divers Parts of *England*, under Hedges, and by the Sides of Woods, where it climbs upon whatever Bushes are near it; and during the time of flowering (which is commonly in *June* and *July*) it affords an agreeable Prospect. This Plant may be cultivated by the Sides of Wilderness-quarters; where it may be allow'd to climb upon some low Bushes, without which Support it seldom thrives well; and in such shady Situations it will flower extremely, and continue for several Years. The best Way to propagate it is by sowing the Seeds either in Spring or Autumn, in the Places where they are to remain; for these Plants commonly shoot their Roots downright into the Ground, so that they seldom thrive well, if transplanted.

The sixth, eighth, and fifteenth Sorts grow wild in this Kingdom. The sixth is very common in shady Woods, and on the Sides of Banks under Trees, in most Parts of *England*. The eighth Sort is found on *Shootover-hill*, and in some other Places in *England*. And the fifteenth grows on *Glastenbury-thorn-hill* in *Somersetshire*.

The seventh, ninth, tenth, twelfth, fourteenth, sixteenth, seventeenth, and eighteenth Sorts grow wild in *Germany*, *France*, and *Italy*; but are not Natives of this Country. These are all of them abiding Plants, whose Roots continue several Years; but

their Shoots die down in Autumn, and fresh ones come out the following Spring; some of which will rise to the Height of five or six Feet, and trail over Bushes, or whatever Plants they grow near; so that they must be supported, otherwise they will appear very unsightly.

These may be propagated by Seeds, which may be sown in Drills on a Border of fresh Earth, expos'd only to the morning Sun. The best time for sowing these Seeds is in *March*, and when the Plants come up, they must be kept clean from Weeds; and where they are too close together, some of them should be drawn up to give room for the remaining ones to grow strong. This is all the Culture they require till *Michaelmas*, when their Shoots will decay; at which time the Roots should be carefully taken up, and transplanted where they are designed to remain, which should be under Trees, and in other shady Wilderness-quarters: where, if they are rightly dispos'd, they will thrive extremely well, and make an agreeable Variety.

The eleventh Sort grows wild in the *Stæchades Isles*, from whence the Seeds have been obtain'd by some curious Persons, who preserve the Sort for the sake of Variety; as is also the eighth Sort, which is found wild in the Neighbourhood of *Paris*.

The nineteenth, twentieth, twenty-first, twenty-second, twenty-third, and twenty-fourth Sorts were discover'd by Dr. *Tournefort* in the *Levant*, from whence he sent their Seeds to the Royal Garden at *Paris*. These, though they are Natives of warmer Countries than *England*, yet will thrive very well in the open Air, and may be admitted into Gardens for the sake of Variety.

The twenty-fifth Sort is also an abiding Plant, whose Shoots decay every Autumn, and fresh ones are produc'd in the Spring. This Sort should have a moist shady Situation, in which the Shoots will rise five or six Feet high, and produce great Quantities of Flowers; thereby affording an agreeable Variety in some obscure Places, where few better Plants will thrive.

The twenty-sixth Sort grows wild in some Woods in the *North of England*, as also in *Oxfordshire*. This is likewise an abiding Plant, which should be treated in the same manner as the former Sort.

As all these Sorts of Vetches grow near Bushes, or under Hedges, on which they climb, and are thereby supported from trailing on the Ground, so, whenever they are brought into Gardens, they should be planted in the like Situation; for if they trail on the Ground, they will run over whatever Plants grow near them, and make a bad Appearance; whereas, if they are planted near any ordinary Shrubs, over which they may be allow'd to ramble, their Flowers will appear scattering among the Branches of the Shrubs, and afford an agreeable Variety.

The twenty-seventh, twenty-eighth, twenty-ninth, and thirtieth Sorts are annual Plants, which grow too plentifully amongst the Corn, so as to become very troublesome Weeds in some Parts of *England*; therefore should be rooted out in the Spring, before their Seeds ripen; for if any of them are permitted to stand until their Seeds are ripe, the first hot Day after, the Pods will burst, and cast their Seeds to a great Distance, so as to fill the Ground with young Plants in Autumn. These Plants always come up in Autumn,

and abide the Winter; during which time they do not appear as if they would ever become large enough to injure the Crop amongst which they grow; but in the Spring they will send forth many lateral Shoots, so as to spread to a considerable Distance; and by their Tendrils will fasten themselves to the Stalks of Corn, or any other Plants, and thereby greatly weaken them; and sometimes, where these Weeds are in plenty, and the Corn but weak, they will ramp quite over it, and thereby almost destroy it. The best time to extirpate these Weeds is in *March* or *April*, when, if they are cut up with a Spaddle in dry Weather, they will in a Day or two be effectually destroy'd, so as not to recover; and if this be repeated two or three Seasons, it will intirely clear the Land of them.

The thirty-first Sort is a very small annual Plant, which grows wild on chalky Hills in some Parts of *England*, but particularly near *Greenbith* in *Kent*. It flowers the Beginning of *April*, the Seeds are ripe in *May*, and the Plant soon after perishes; so that whoever is desirous to find it, must search for it while it is in Vigour; otherwise it is so small, that it can hardly be discover'd. If this Plant is design'd to be preserv'd in a Garden, the Seeds should be sown early in Autumn, that the Plants may get Strength before Winter; for when they are sown in the Spring, they seldom succeed. When they are once establish'd in a Garden, and their Seeds permitted to scatter, they will maintain themselves better than if sown by Hand; and will require no other Care but to keep them clear from Weeds.

There are some of the larger Kinds of these Vetches as well worth cultivating in the Fields as the common
Tare,

Tare, and will serve for the same Purposes; especially the second, third, and ninth Sorts, which grow large, and afford a good Quantity of Seeds. These may all be cultivated in the same manner as the common Sort, and are equally hardy.

The usual time for sowing of Vetches or Tares is in the Spring, about the Middle of *February*; but from several Experiments which I have made, I find it to be a much better Method to sow them in Autumn; for as they are hardy enough to resist the Frost in Winter, they will get Strength early in the Spring, and will grow considerably larger than those which are sown in the Spring, and will produce a larger Quantity of Seeds; which, ripening early in Summer, may be gather'd in before Wheat-harvest.

The Sorts of Vetches which are cultivated for Use in the open Fields, should be sown in Drills, after the same manner as is practised for Peas. These Drills should be a Foot and an half, or two Feet, asunder, that there may be room for the Hoeing-plough to go between them, in order to destroy the Weeds, and to earth the Plants. These Drills should be about the same Depth as those usually made for Peas; and the Seeds should be scatter'd about the same Distance in the Drills. These Seeds should be carefully cover'd as soon as they are sown; for if they are left open, the Rooks will discover them; so that where they are not carefully watch'd, they will intirely devour them. Indeed these, being sown in Autumn, will be in less Danger than those which are sown in the Spring; because there is more Food for Rooks and Pigeons in the open Fields at this Season; and the Plants will appear much sooner above-ground. The best

time to sow them is, about the Beginning of *September*; for the Rains which usually fall at that Season, will bring them up in a short time. Toward the Latter-end of *October*, the Plants will have obtained considerable Strength; wherefore they should then be earthed up with the Hoeing-plough. This Work should be perform'd in dry Weather, and in doing of it Care must be had to lay the Earth up as high to the Stems of the Plants as possible, so as not to cover their Tops; because this will secure them against Frost. The whole Space of Ground between the Rows should also be stirr'd, in order to destroy the Weeds; which, if carefully perform'd in dry Weather, will lay the Land clean till *March*; at which time the Crop should be earth'd a second time, and the Ground clean'd again between the Rows; which will cause the Plants to grow vigorous, and in a little time they will spread so as to meet, and cover the Spaces; whereas those sown in the Spring will not grow to half this Size, and will be very late in flowering.

Some People sow these Vetches; and when they are fully grown, plow them in the Ground, in order to manure it. Where this is design'd, there will be no Occasion to sow them in Drills at this Distance, nor to husband them in the manner before directed; but in this Case it will be the best Method to sow them in Autumn, because they will be fit to plow in much sooner the following Year; so that the Land may be better prepar'd to receive the Crops for which it is intended. In some Parts of *France*, and in *Italy*, these Vetches are sown for feeding of Cattle while green, and are accounted very profitable: and in many Parts of *England* they are cultivated to feed

Cart-horſes, &c.; though upon ſuch Land, where Lucern will thrive, it will be much better Huſbandry to cultivate that for this Purpoſe.

Where theſe Plants are cultivated for their Seeds, they ſhould be cut ſoon after the Pods change brown; and when they are dry, they muſt be immediately ſtack'd; for if they are ſuffer'd to lie out in the Field to receive Wet, and there comes one hot Day after it, the Pods will moſt of them burſt, and caſt out the Seeds. When the Seeds are threſh'd out, the Haulm is eſteem'd very good Food for Cattle; and ſome have recommended the Seeds for Horſes, and affirm they are as proper for thoſe Animals as Beans; which, if true, will render them more valuable, becauſe theſe will grow on the lighteſt ſandy Land, where Beans will not thrive; ſo may be a good Improvement to ſome Counties in England, where they do not attempt to cultivate Beans.

VINCA PERVINCA. *Vide Per-
vinca.*

VINCETOXICUM. *Vide Aſ-
clepias.*

VINE. *Vide Vitis.*

VIOLA, Violet.

The Characters are;

It hath a polypetalous anomalous Flower, ſomewhat reſembling the papilionaceous Flower; for its two upper Petals, in ſome meaſure, repreſent the Standard, the two ſide ones the Wings; but the lower one, which ends in a Tail, in ſome meaſure reſembles the Keel: out of the Empalement ariſes the Pointal, which afterward becomes a Fruit, for the moſt part, three-corner'd, opening into three Parts, and full of roundiſh Seeds.

The Species are;

1. VIOLA *Martia purpurea, flore ſimplici odore.* C. B. P. Common

purple Violet, with a ſweet-ſcented Flower.

2. VIOLA *Martia major hirsuta inodora.* Mor. Hiſt. Greater hairy March Violet, without Smell.

3. VIOLA *Martia inodora ſylveſtris.* C. B. P. Wild or Dogs Violet.

4. VIOLA *Martia alba.* C. B. P. White ſweet-ſcented Violet.

5. VIOLA *Martia, multiplici flore.* C. B. P. Double purple Violet.

6. VIOLA *Martia, flore multiplici candido.* C. B. P. Double white Violet.

7. VIOLA *Martia, folio eleganter variegato, flore albo.* March Violet, with a beautiful variegated Leaf, and a white Flower.

8. VIOLA *Martia, flore rubello.* March Violet, with a rediſh-colour'd Flower.

9. VIOLA *erecta, flore cœruleo.* Mor. Hiſt. Upright Violet, with a blue Flower.

10. VIOLA *Martia hortensis, foliis amplioribus.* C. B. P. Garden March Violet, with larger Leaves.

11. VIOLA *Martia inodora ſylveſtris, foliis mucronatis, oblongis, & ſtriſtoribus.* C. B. P. Dogs Violet, with oblong and narrow-pointed Leaves.

12. VIOLA *Martia, multiplici flore rubello.* C. B. P. March Violet, with a double rediſh Flower.

13. VIOLA *Martia, multiplici flore ex albo & purpureo variegato.* C. B. P. March Violet, with a double Flower, variegated with White and Purple.

14. VIOLA *Martia multiplex, flore cinereo.* H. R. Par. Double March Violet, with an aſh-colour'd Flower.

15. VIOLA *Martia intente purpurea, flore minore pleno.* J. B. March Violet, with a ſmall double Flower, of a deep-purple Colour.

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16. *VIOLA Alpina*, folio in plures partes dissecto. C. B. P. Alpine Violet, with a Leaf cut into many Parts.

17. *VIOLA Alpina rotundifolia lutea*. C. B. P. Yellow Violet of the Alps, with a roundish Leaf.

18. *VIOLA montana lutea grandiflora*. C. B. P. Mountain Violet, with a large yellow Flower.

19. *VIOLA tricolor hortensis repens*. C. B. P. Pansies, Hearts-ease, or three-colour'd Violet, commonly call'd three Faces under an Hood.

20. *VIOLA montana tricolor odoratissima*. C. B. P. The most sweet-smelling three-colour'd mountain Violet.

21. *VIOLA montana alba grandiflora*. C. B. P. Great-flower'd white mountain Violet.

22. *VIOLA montana lutea, subrotundo crenato folio*. Barr. Icon. Yellow mountain Violet, with a roundish notch'd Leaf.

23. *VIOLA montana cærulea grandiflora*. H. R. Par. Great-flower'd blue mountain Violet.

24. *VIOLA montana lutea, foliis non crenatis*. C. B. P. Yellow mountain Violet, with Leaves not notch-ed.

25. *VIOLA Ætnica erecta bicolor hirsuta minima elatior ac ramosior*. Hort. Cath. Upright two-colour'd hairy very small Violet of Ætna, taller and more branching.

26. *VIOLA arvensis, flore toto luteo*. C. B. P. Field Violet, with a Flower all yellow.

27. *VIOLA cærulea maxima, cucumerinis hirsutis foliis, Virginiana*. Pluk. Phyt. The largest blue Violet of Virginia, with hairy Cucumber-leaves.

28. *VIOLA maxima, cucumerinis hirsutis foliis, Virginiana, flore luteo*. Pluk. Alm. The largest Violet of

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Virginia, with hairy Cucumber-leaves, and a yellow Flower.

29. *VIOLA Virginiana, platani fere foliis, parvis & incanis*. Pluk. Mantiss. Virginian Violet, with small hoary Leaves, shap'd like those of the Plane-tree.

The first Sort here mention'd is very common in Woods, and shady Lanes, in divers Parts of England, and is what should always be used in Medicine; though the People who sell these Flowers in the Markets, do many times impose upon the Ignorant the Flowers of the second Sort, which are much larger than those of the first, and fill up the Measure better; but they, having no Smell, are very improper for Use.

All the eight first Sorts are pretty Varieties in a Garden; where, being planted under Hedges, in Wildernesses, or other shady Places, they will thrive exceedingly, and will want no other Culture than only to keep them clear from Weeds; and in the Spring, when they are in Flower, they cast forth a most agreeable Perfume, especially in Mornings or Evenings; so that it renders such Places very delightful at those Seasons.

These may be easily propagated by parting their Roots. The best time for which is at Michaelmas, that the Plants may take Root before Winter; so that they may flower stronger the succeeding Spring.

The double Sorts, and those without Smell, may be admitted for Variety; but the single blue, white, and redish-colour'd Sorts, are those which should be most cultivated; because these are equally well-scented, in which the greatest Curiosity of these Flowers consists. And these, all growing wild in England, may be easily obtain'd in Quantity from their

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their Places of Growth, by such who are fond of these Flowers.

The ninth Sort is preserv'd in some curious Gardens for Variety; but there is no Scent in its Flowers; so that it hardly merits a Place in curious Flower-gardens.

The tenth Sort differs from the common Violet, in having large hairy Leaves; and the Flowers have not so good Flavour: but this Sort is frequently cultivated in Gardens, and the Flowers are brought to the Markets; tho' they are not near so good for Use as the common Sort.

The eleventh has oblong pointed Leaves, in which it differs from the last: the Flowers of this Sort have no Flavour; so are unfit for Use.

The twelfth, thirteenth, fourteenth, and fifteenth Sorts are Varieties of the common Violet with double Flowers: these are worthy of a Place in every good Garden, on account of their fine double sweet-smelling Flowers, especially as they require no other Culture than the common Violet: but these Sorts do not produce their Flowers in great Plenty, unless they are planted in a strong Soil, and an open airy Situation; for in small or close Gardens they do not flower near so well, as where they have a clear open Air.

The eleven next-mention'd Sorts agree with the Hearts-ease or Pansies, more than with the other Kinds of Violet: the seventeenth, eighteenth, twenty-first, and twenty-third Sorts are perennial Plants, which may be propagated by parting their Roots; the best time for doing of this is at *Michaelmas*, that they may be well rooted before the Spring: these delight in Shade and Moisture, therefore should be planted on a North Border; and in dry Weather they must be duly water'd, otherwise they will not thrive. The

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eighteenth Sort grows wild in the North of *England*, upon moist Mountains: the twenty-first and twenty-third Sorts are only Varieties of this, differing in the Colour of their Flowers.

The nineteenth is the common Pansy or Hearts-ease, of which there are a great Number of Varieties: these are all annual Plants, which scatter their Seeds, and propagate themselves in plenty, where they are permitted to stand: the twentieth Sort is by much the most valuable, the Flowers of this being larger, the Colours very beautiful, and the Scent almost equal to the common Violet-flower.

These Sorts will scatter their Seeds in a short time after their Flowers are past; and the Plants which come up in Autumn will flower very early in the Spring; and these will be succeeded by the Spring-plants; so that where they are indulged in a Garden, there will be a constant Succession of their Flowers the greatest Part of the Year; for they will flower all the Winter in mild Seasons, and most Part of the Summer in shady Situations; which renders them worthy of a Place in every good Garden: but then they must not be allowed to spread too far, lest they become troublesome Weeds; for their Seeds, when ripe, are cast out of their Covers with great Elasticity to a considerable Distance; and the Plants will soon spread over a large Space of Ground, if they are permitted to stand.

The common Pansy stands in the *College-Dispensatory*, as a medicinal Plant; but is rarely used in *England*.

The twenty-seventh, twenty-eighth, and twenty-ninth Sorts are Natives of *Virginia*, *New-England*, and several other Parts of *North-America*; from whence some of the
Plants

Plants have been brought to *England*, and are preserv'd in Gardens by some curious Persons, for the sake of Variety: but as their Flowers have no Scent, and little Beauty, they are not much regarded.

These are as hardy as the common Violet, and may be propagated by parting their Roots, in the same manner as is practis'd for that; and they should have a moist shady Situation, and a light Soil.

VIORNA. Vide Clematitis.

VIRGA AUREA, Golden-rod.

The Characters are;

The Leaves are, for the most part, whole, and are plac'd alternately on the Stalks: the Calyx, or Flower-cup, is squamous: the Flowers are small, radiated, and of a yellow Colour, consisting of many Florets, each of which is furnish'd with an Embryo, which afterward becomes a Seed, having a downy Substance adhering to it: to which should be added, That the Flowers are produc'd in a long Spike.

The Species are;

1. VIRGA AUREA *vulgaris latifolia*. J. B. The common or broad-leav'd Golden-rod.

2. VIRGA AUREA *montana*, folio angusto subincano, flosculis conglobatis. Raii Syn. Narrow-leav'd mountain Golden-rod, with an hoary Leaf, and conglobate Flowers.

3. VIRGA AUREA *angustifolia*, panicula speciosa, Canadensis. H. R. Par. Narrow-leav'd Canada Golden-rod, with a specious Panicle.

4. VIRGA AUREA *Canadensis hirsuta*, panicula minus speciosa. Boerh. Ind. Rough Canada Golden-rod, with a less specious Panicle.

5. VIRGA AUREA *Novæ Angliæ altissima*, paniculis nonnunquam reflexis. Flor. Bat. The tallest New-England Golden-rod, with a reflex'd Panicle.

6. VIRGA AUREA *altissima serotina*, panicula speciosa patula. Rand. Tallest late-flowering Golden-rod, with a specious spreading Panicle.

7. VIRGA AUREA *Virginiana*, foliis angustioribus asperis, panicula minus speciosa. Pluk. Phyt. Virginian Golden-rod, with narrow rough Leaves, and a less specious Panicle.

8. VIRGA AUREA *rugosis foliis*, Virginiana, panicula florum amplissima. Pluk. Phyt. Rough-leav'd Virginian Golden-rod, with an ample Panicle of Flowers.

9. VIRGA AUREA *foliis lævibus non serratis*, panicula speciosa, floribus magnis. Flor. Bat. Smooth-leav'd Golden-rod, with a specious Panicle, and large Flowers.

10. VIRGA AUREA *Marylandica*, spicis florum racemosis, foliis integris scabris. Mart. Hist. Rar. Plant. Golden-rod from Maryland, with branching Spikes of Flowers, and whole rough Leaves.

11. VIRGA AUREA *Canadensis, asterisci folio*. Par. Bat. Canada Golden-rod, with a Leaf like Asteriscus.

12. VIRGA AUREA *Americana serrata*, floribus ad foliorum alas conglobatis. Breyn. Prod. American Golden-rod, with serrated Leaves, and conglobated Flowers coming out from the Wings of the Leaves.

13. VIRGA AUREA *limonii folio*, panicula uno versu disposita. H. R. Par. Golden-rod with a Sea-lavender-leaf, and the Flowers growing upon one Side of the Stalk.

14. VIRGA AUREA *Novæboracensis glabra*, caulibus rubentibus, foliis angustis glabris. Flor. Bat. Smooth New-York Golden-rod, with red Stalks, and narrow smooth Leaves.

15. VIRGA AUREA *floribus fistulosis*, senecionis instar, foliis angustioribus non serratis. Hist. Oxon. Golden-rod with fistulous Flowers, somewhat

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what like Groundsel, and narrow smooth Leaves.

16. VIRGA AUREA *Canadensis*, foliis carnosiss non serratis latioribus. Hist. Oxon. Golden-rod with broad fleshy smooth Leaves.

17. VIRGA AUREA *Novæ Angliæ*, foliis longissimis glabris. Flor. Bat. New-England Golden-rod, with long smooth Leaves.

18. VIRGA AUREA *Americana* hirsuta, radice odorato. Juncq. Hairy American Golden-rod, with a sweet Root.

19. VIRGA AUREA *Americana* cæssa glabra. Hort. Elth. Smooth American Golden-rod.

20. VIRGA AUREA *Americana*, foliis angustissimis glabris, floribus ex alis foliorum prodeuntibus. Dale. American Golden-rod, with very narrow smooth Leaves, and the Spikes of Flowers coming out from the Wings of the Leaves.

21. VIRGA AUREA *Americana* serotina, caulibus purpurascens, foliis oblongo-ovatis glabris sessilibus, spicis florum crassioribus. Dale. Late American Golden-rod, with purple Stalks, and oblong oval smooth Leaves embracing the Stalks, and thick Spikes of Flowers.

22. VIRGA AUREA *major*, foliis glutinosiss & graveolentibus. Inst. R. H. Greater Golden-rod, with clammy and stinking Leaves.

23. VIRGA AUREA *minor*, foliis glutinosiss & graveolentibus. Inst. R. H. Smaller Golden-rod, with clammy and stinking Leaves.

24. VIRGA AUREA *major*, foliis glutinosiss & graveolentibus, gallas ferens. Inst. R. H. Greater gall-bearing Golden-rod, with clammy and stinking Leaves.

25. VIRGA AUREA *Virginiana* annua. Zan. Annual *Virginian* Golden-rod.

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26. VIRGA AUREA *Americana* annua graveolens, flore minimo, foliis conjugatis, & hyperici modo perforatis. Houst. Annual stinking American Golden-rod, with a very small Flower, and Leaves growing by Pairs, which are perforated in the manner of *St. John's-wort*.

27. VIRGA AUREA *Americana*, urticæ foliis rugosis conjugatis & hirsutis, florum spicis foliosis. Houst. American Golden-rod, with rough Nettle-leaves growing by Pairs, and the Spikes of Flowers set with small Leaves.

28. VIRGA AUREA *Americana* fruticosa, salicis folio, floribus quasi umbellatis. Houst. Shrubby American Golden-rod, with a Willow-leaf, and Flowers growing almost in an Umbel.

There are several other Varieties of this Plant, which are preserv'd in some curious Botanic Gardens; but those here mention'd are the most valuable Sorts which I have yet seen in the *English* Gardens; the greatest Part of which are Natives of *America*, from whence it is very probable, there may be many other Sorts brought, since these Plants propagate themselves by shedding thier Seeds, which are likely to produce new Varieties annually; as do most other Sorts of Plants; so that there may be no End to their Variety.

These Plants are very great Ornaments in the Borders of large Flower-gardens, where, by their Succession of Flowering, they afford a very great Pleasure; for the earliest Kinds begin to flower in *June*, which are succeeded by other Sorts until the Latter-end of *October*; and their Flowers, being produced, for the most part, on long specious Spikes or Panicles, make a very handsome Appearance, and are very ornament-

tal to Flower-pots, when intermix'd with Flowers of different Colours, to place in Rooms.

They are all easily propagated by parting their Roots in the Spring, before they begin to shoot; and should be planted in the Middle of the larger Borders in the Flower-garden: they will grow in almost any Soil or Situation; but will thrive best in a fresh light Earth, and an open Exposure; tho' some of the hardiest of them may be plac'd under Avenues of Trees, where they will continue in Flower a long time, and look very well. The first twelve Sorts are hardier than the rest, and will increase very fast by Off-sets, which some of them send forth in very great Plenty; insomuch that if they are not carefully dug round, at least once in every Year, and their Roots cut round, they will spread over the Borders where they are planted, and destroy such Plants as stand near them. The other Sorts should have a warmer Situation, and a dry Soil: these are not so apt to spread at their Roots as the others; so that there will be no Difficulty of keeping them within Bounds.

The first Sort here mention'd is sometimes used in Medicine. This grows wild in most shady Woods in the South Parts of *England*; from whence the Roots may be transplanted into a shady Part of the Garden, where they will thrive and flower very well.

The second Sort grows upon the Mountains in *Wales*, as also upon the *Alps* and *Pyrenees*: this is a very low Plant, seldom rising more than a Foot high, and flowers toward the Latter-end of *June*.

The nineteen Sorts next-mention'd are Natives of *America*: these grow some two Feet, others three, some four and five Feet high; and

flower after each other from *July* to *November*.

These are all perennial Plants, which die to the Surface of the Ground every Winter, but rise again the succeeding Spring: most of them produce their Flowers in Autumn; and if the Season proves favourable, will ripen their Seeds; which, if sown soon after ripe, will come up the following Spring, from whence some new Varieties may be obtained.

The twenty-second, twenty-third, and twenty-fourth Sorts seldom continuing longer than two or three Years, should be often renewed. These may be increased by parting their Roots; but the Plants which are thus parted, rarely thrive so well as those which are raised from Seeds: but as these Plants do not perfect their Seeds every Year in *England*, the other Method must be practised to preserve the Kinds. The best time for this Work is in Autumn, that they may be well rooted before the Spring, otherwise they will not flower very strong. These Sorts should be planted on a loamy Soil on open Borders; for they will not thrive under the Drip of Trees.

The twenty-fifth Sort is an annual Plant of no great Beauty; which, if permitted to scatter its Seeds, will become a Weed over the Garden. This Plant is now become a common Weed in the Fields in divers Parts of *England*: but it is generally believ'd the Seeds were at first blown out of Gardens; for it was originally brought from *America*.

The twenty-sixth, twenty-seventh, and twenty-eighth Sorts were discover'd by the late Dr. *Houssoun*, at *La Vera Cruz*. These, being tender Plants, will not live in the open Air in *England*. They may be propagated by Seeds, which should be sown

sown on a moderate Hot-bed early in the Spring; and when the Plants are come up, they should be transplanted into Pots fill'd with fresh Earth, and then plung'd into a moderate Hot-bed of Tanners Bark; observing, after they have taken new Root, to admit a large Share of free Air to them every Day, when the Weather is warm, as also to water them constantly every Day; for they naturally grow in moist Places. The twenty-sixth Sort, which is an annual Plant, will flower toward the Middle of *June*, and the Seeds will ripen the End of *August*; when some of them should be sown to come up before Winter; because the Seeds will more certainly grow at this Season, than in the Spring; and the Plants will grow much stronger. The twenty-seventh Sort, being a biennial Plant, rarely flowers the first Season; therefore this, and the twenty-eighth Sort, which is an abiding Plant, should be removed into the Stove at *Michaelmas*, and placed where they may have a temperate Degree of Warmth in Winter, in which they may be preserv'd: but they must be frequently refresh'd with Water, tho' in very cold Weather it must not be given in great Quantities. With this Management the Plants will flower extremely well, and add to the Variety in the Stove.

VISCUM, Mistleto.

The Characters are;

The Flower consists of one Leaf, which is shap'd like a Basin, and, for the most part, divided into four Parts, and beset with Warts: the Ovary, which is produc'd in the Female Flowers, is plac'd in a remote Part of the Plant from the Male Flowers, and consists of four shorter Leaves: this afterward becomes a round Berry, full of a glutinous Substance inclosing a plain heart-shap'd Seed.

We have but one Species of this Plant in *England*; viz:

VISCUM baccis albis. C. B. P. Common Mistleto, with white Berries.

This Plant is always produc'd from Seed, and is not to be cultivated in the Earth, as most other Plants; but is always found growing upon Trees; from whence the Antients accounted it a Super-plant; most of whom thought it was an Excrecence on the Tree, without the Seed being previously lodg'd there: which Opinion is now generally confuted from a repeated Number of Experiments.

The Manner of its being propagated is this; viz. The Mistletoethruth, which feeds upon the Berries of this Plant in Winter, when it is ripe, doth often carry the Seeds from Tree to Tree; for the viscous Part of the Berry, which immediately furrounds the Seeds, doth sometimes fasten it to the outward Part of the Bird's Beak; which to get disengaged of, he strikes his Beak against the Branches of a neighbouring Tree, and thereby leaves the Seed sticking by this viscous Matter to the Bark; which, if it lights upon a smooth Part of the Tree, will fasten itself thereto, and the following Winter will put out and grow; and in the same manner it may be propagated by Art; for if the Berries, when full-ripe, are rubbed upon the smooth Part of the Bark of a Tree, they will adhere closely thereto; and, if not destroyed, will produce Plants the following Winter.

The Trees which this Plant doth most readily take upon, are, the Apple, the Ash, and some other smooth-rinded Trees; but I have several times try'd it upon the Oak without Success; for the Bark of that Tree

Tree is of too close a Texture to admit the Seeds striking therein; which is also the Reason it is so rarely found upon that Tree: and notwithstanding the great Encomiums which have been given to the Mistletoe of the Oak, for its Medicinal Virtues; yet I can't help thinking, that it is equally good, from whatever Tree it be taken; nor is it possible to find this Plant growing in any Quantity upon the Oak; so that those Persons who pretend to furnish the Town with it for physical Use, do but impose upon the World; for it is so rarely met with, that whenever a Branch of an Oak-tree hath any of these Plants growing upon it, it is cut off, and preserv'd by the Curious in their Collections of Natural Curiosities; and of these there are but few to be seen in *England*.

As to what some Persons have asserted of the Manner how it is propagated, from Tree to Tree, by the Mistletoe-thrushes, which eat the Berries, and void the Seed in their Dung, upon the Branches of Trees, whereby the Seeds are stuck thereon, and take Root into the Bark, and produce fresh Plants, I can by no means agree to; since if it were only this way propagated, it would always be found upon the Upper-part or the Sides of such Branches, upon which the Dung can only be supposed to lodge; whereas it is generally found upon the Under-side of Branches, where it is almost impossible for these Birds to cast their Dung; besides, I believe the Stomachs of these Birds are too powerful Digesters to suffer any Seeds to pass intire through the Intestines. But I shall leave this to such as have Leisure to make Observations in those Places where this Plant abounds; and shall add only a short Account of the Method us'd to

make Birdlime, which may not be improper to insert in this Place for the Satisfaction of the Curious.

The *Italians* make their Birdlime of the Berries of Mistletoe, heated and mix'd with Oil, as that made of Holly-bark; and, to make it bear the Water, they add Turpentine.

That which is commonly us'd with us, is made of the Bark of Holly; which they boil for ten or twelve Hours: and when the green Coat is separated from the other, they cover it up for a Fortnight in a moist Place, pounded into a tough Paste, that no Fibres of the Wood be left; then they wash it in a running Stream till no Motes appear, and put it up to ferment for four or five Days, and scum it as often as any thing arises, and then lay it up for Use. When they use it, they incorporate with it a third Part of that Oil over the Fire.

The Birdlime that is brought from *Damascus* is supposed to be made of *Sebestens*, their Kernels being frequently found in it; but this will not endure either Frost or Wet.

The Birdlime brought from *Spain* is of an ill Smell.

The Bark of our Lantone or Way-faring Shrub, as it is said, will make Birdlime as good as the best.

VISNAGA, *Spanish* Picktooth.

The Characters are;

It is an umbelliferous Plant, with a rose-shaped Flower, consisting of several Petals, which rest on the Empalement; which afterward becomes the Fruit, composed of two oblong furrow'd Seeds: to these Notes must be added, The Leaves are finely divided like Fenel; and when the Flowers fall off, the Umbel contracts together.

The Species are;

1. VISNAGA seu Gingidium. Mor. Umb. Common *Spanish* Picktooth.

2. Vis-

2. *VISNAGA seu Gingidium Montis Libani*. Munt. Plant. Greater Tooth-pick of Mount *Libanus*.

The first Sort grows plentifully in the South of *France*, as also in *Spain* and *Italy*. The *Spaniards* make use of the Footstalks of the Umbel for Tooth-picks, from whence it obtained this Name. This Plant is preserv'd in the Gardens of some curious Persons, for the sake of Variety. It is an annual Plant, and perishes soon after the Seeds are ripe. The Seeds of this Plant should be sown early in Autumn, that the Plants may obtain Strength before the Frost. These will endure the Cold of our Winters extremely well, provided the Seeds are sown on a dry Soil; for these Plants do not very well bear transplanting: therefore the Seeds should be sown where the Plants are design'd to remain. In the Spring the Plants should be thinn'd where they come up too thick, leaving them about six or eight Inches asunder; and if they are afterward kept clear from Weeds, it is all the Culture they require. In *June* they will flower, and their Seeds will ripen in *August*.

The second Sort is less common in *England* than the first: this is found on Mount *Libanus*, and in several other mountainous Places in the East Country. The Umbels of this Sort are much larger than of the former, and the Leaves of the Plant are not so finely cut. The Seeds of this Sort have been often brought into *England*, from which I have rais'd the Plants, which have grown very well the former Part of the Season; but they have always decay'd soon after *Midsummer*; so that I never could preserve any of them to flower.

VITEX, *Agnus Castus*, or the Chaste-tree.

The Characters are;

It hath a Flower consisting of one Leaf, which appears as if it had two Lips: the Fore-part is tubulose; from whose Flower-cup rises the Pointal, which afterward becomes an almost spherical Fruit, which is divided into four Cells, in which are contain'd oblong Seeds: to which may be added, The Leaves are digitated, or finger'd, like those of Hemp.

The Species are;

1. *VITEX foliis angustioribus, cannabinis modo dispositis*. C. B. P. The Chaste-tree with narrow Leaves.

2. *VITEX latiore folio*. C. B. P. The Chaste-tree with broad ferrated Leaves.

3. *VITEX sive Agnus, flore albido*. H. R. Par. The Chaste-tree, with whitish Flowers.

4. *VITEX sive Agnus minor, foliis angustissimis*. H. R. Par. The lesser Chaste-tree, with very narrow Leaves.

The first of these Plants is pretty common in most of those *English* Gardens, where a Variety of hardy Trees are preserv'd; but the other Sorts are less common, and only in some curious Gardens at present. These Plants are all very hardy, and may be propagated by planting their Cuttings early in the Spring, before they shoot: they require a fresh light Soil, and must be frequently refresh'd with Water, until they have taken Root; after which they must be carefully clear'd from Weeds, during the Summer-season; and if the Winter prove severe, you must lay a little Mulch upon the Surface of the Ground between the Plants, to prevent the Frost from penetrating to their Roots, which would injure them while they are young: toward the middle of *March*, if the Season be favourable, you should transplant them either into the Places where they

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they are design'd to remain, or into a Nursery for two or three Years to get Strength; where they must be prun'd up, in order to form them into regular Plants, otherwise they are very subject to shoot out their Branches in a straggling manner.

If these Plants are plac'd in a warm Situation, and have a kindly light Soil, they will grow to be eight or ten Feet high, and produce their Spikes of Flowers at the Extremity of every strong Shoot in Autumn; which, altho' of no great Beauty, yet coming late in the Year, and having an odd Appearance, together with the Variety of their Leaves, renders them worthy of a Place in small Wilderness-quarters, amongst other Shrubs of the same Growth.

They may also be propagated by laying down their Branches in the Spring of the Year; in doing of which you must be very careful not to break them; for their Shoots are extremely brittle, and very subject to split off with the least Violence: these will take Root in one Year, provided they are water'd in very dry Weather; and may then be transplanted out, and manag'd, as was directed for those Plants rais'd from Cuttings.

VITIS, The Vine.

The Characters are;

The Flower consists of many Leaves, which are plac'd in a circular Order, and expand in form of a Rose: the Ovary, which is situated in the Bottom of the Flower, afterward becomes an oval or round Fruit, which is very full of Juice, and contains many small Stones in each: to which should be added, That the Tree is climbing, sending forth Claspers at the Joints; by which it fastens itself to whatever Plant stands near it; and the Fruit is produc'd in Bunches.

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The Species are;

1. VITIS *sylvestris* Labrusca. C. B. P. The wild Vine, commonly call'd the Claret Grape. This Sort of Grape is pretty well known in England: it has a Berry of a middling Size, of a deep black Colour, cover'd over with a Bloom like a Plum, which may be wiped off; the Juice stains of a deep-red Colour; and before it is quite dead-ripe, is of an austere Taste: the Bunches are pretty large, but short, having commonly two Side-bunches or Shoulders on the Upper-part of the Bunch: the Leaves of this Vine are jagged, and change to a deep-red Colour before they fall off.

2. VITIS *præcox* Columella. H. P. Par. This is called in England the July Grape; but in France, Morillon, and Vigne bâtive. This is the earliest Grape at present known in England, for which it is chiefly preserv'd; for it is not much esteem'd for its Goodness: the Skin is thick, the Juice but very indifferent; and the Berries commonly grow very thin upon the Bunches. These are of a middle Size, and of a dark muddy-red Colour.

3. VITIS *Corinthiaca* sive *Apyria*. J. B. The Corinth Grape, vulgarly call'd the Curran Grape, is an early Ripener; the Berry is small and slender, the Juice very sweet, and hath very little Stone. Of this Kind there are two or three different Colours, as red, black, and tawny. This is the Sort which is brought from the Islands of Zant, Cephalonia, &c. by the Name of Currans, and sold by the Grocers of London, to put into Puddens, &c.

4. VITIS *laciniatis foliis*. Cornut. The Parsley-leav'd Grape, vulgo. This Sort was originally brought from Canada, where it grows wild

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in the Woods ; and is preserv'd in the Gardens of the Curious, for the Variety of its fine jagged Leaves. This is a pretty large white Grape, and has a sweet Juice, but not very vinous : the Berries are very apt to grow thin upon the Bunches, unless the Vine is pruned short, and left but thin with Wood.

5. *VITIS subbirsuta. C. B. P.* The Morillon Taconne, or Munier, *i. e.* the Miller's Grape; this is call'd the *Burgundy* in *England*. The Leaves of this Sort are very much powder'd with White, especially in the Spring, when they first come out, from whence it had the Name of Miller's Grape. It produces middle-siz'd black Grapes, which grow close upon the Bunches, and are generally short and thick. This is an excellent Bearer, and an hardy Sort.

6. *VITIS præcox Columellæ, acinis dulcibus nigricantibus.* The black Morillon. This is call'd in *Burgundy*, Pineau, and at *Orleans*, *Auverna*. It is a very sweet Grape, of a middle Size, somewhat oval, and of a fine black Colour ; the Bunches are somewhat longer than those of the former. This makes very good Wine.

7. *VITIS uva perampla, acinis albidis dulcibus durioribus. Tourn.* The Chasselas blanc, Bar-sur-Aube, White Chasselas, or Royal Muscadine. This is a large white Grape, and grows close upon the Bunches, which are also very large, and have commonly two small Side-bunches or Shoulders produc'd from the Upper-part of the Bunch : the Berries, when full-ripe, if well expos'd to the Sun, change to a pale amber Colour ; the Juice is very rich, and the Fruit is commonly ripe early in *September*.

8. *VITIS uva perampla, acinis dulcibus nigricantibus. Tourn.* The

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Chasselas noir, *i. e.* The black Chasselas. This is very often call'd the black Muscadine. The Berries of this are as large as those of the former ; the Bunches are commonly larger, and are somewhat later ripe ; the Juice is very rich. If well exposed, they bear well, and are ripe toward the End of *September*.

9. *VITIS uva perampla, acinis dulcibus rubentibus. Tourn.* The red Chasselas. This is also call'd the red Muscadine. The Berries of this Sort are a little larger than those of the former, and grow much thinner upon the Bunches ; are of a faint-red Colour ; and the Juice is very sweet, but later ripe ; upon which account it is not so valuable in *England*.

10. *VITIS uva perampla, acinis ovatis albidis. Tourn.* The Burdelais, vulgarly call'd Burlake. The Berries of this Kind are very large, of an oval Shape, and grow pretty close on the Bunches, which are sometimes of a prodigious Size. I have seen a Bunch of these Grapes, which has weighed five Pounds : but they never ripen in this Country, so that they are fit for nothing except Verjuice, or to make Tarts.

11. *VITIS acinis albis dulcissimis, Vitis Apiana. C. B. P. Garidel.* The Muscat, or White Frontiniac. The Berries of this Kind are large, and grow extremely close upon the Bunches, which are very long, and have commonly two Shoulders : the Fruit, when ripe, has a rich musky Flavour ; but it is commonly very late in Autumn before they ripen ; and the Berries, being so very close upon the Bunches, detain the Moisture in their Middles ; so that they commonly perish : to prevent which, some very curious Persons look over their Vines, soon after the Grapes are formed, and with a Pair of Scissars cut out all the small ones,

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so as to leave the others at a moderate Distance, whereby the Sun and Air are easily admitted, which dissipates the Moisture, and prevents their perishing. This is a great Bearer.

12. *VITIS acinis rubris nigricantibus dulcissimis. Garidel.* The Muscat rouge, or red Frontiniac. The Berries of this Kind are of the Size of the former; but grow much thinner on the Bunches; it is higher flavoured, and, when thorough ripe, is the richest Grape yet known: but this must have a very dry Soil, and a South-east Aspect, otherwise it seldom ripens well in *England*.

13. *VITIS acinis nigricantibus dulcissimis.* The black Frontiniac. The Berries of this Kind are less than the two former; but are not so high-flavoured; their Juice is sweet, and they are earlier ripe. This is a good Bearer; but the Grapes upon the same Bunch seldom ripen at the same time; so that they can't be gather'd in full Bunches; but must be pick'd off singly as they ripen.

14. *VITIS Damascena. H. R. Par.* The Damask Grape. The Berries of this Kind are very large, black, and of an oval Form; the Bunches are very large, and the Vine produces vigorous Shoots. This ripens late in *England*.

15. *VITIS præcox, acino rotundo albido dulci.* The white Sweet-water. The Berries of this Kind are large and white; the Skins are very thin, and the Juice is sweet: this is very early ripe; but the Berries are apt to be thin upon the Bunches; for it is one of the tenderest Sorts, when in Flower, that I have yet seen; so that if there happens bad Weather at that Season, they are very subject to blight; and being so uncertain in bearing, has rendered it less esteem'd than it was formerly.

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16. *VITIS præcox, acino nigro, dulci & rotundo.* The black Sweet-water. This is a less Grape than the former; it is of a fine black Colour, and grows pretty close upon the Bunches; its Juice is sweet, and it is early ripe.

17. *VITIS alba dulcis. J. B.* The white Muscadine. The Berries of this Kind are large, of a white Colour, and the Juice is very sweet; the Bunches are long, and it is early ripe.

18. *VITIS Allobrogica Plinii. Car. Steph. Præd. Rust.* The Raisin Grape. This is a large oval Grape of a blackish Colour, when ripe; the Bunches are very large, and make a fine Appearance; but never ripen well in *England*. I have known some Persons who had a great Quantity of this Sort of Grape, which they commonly cut in the Middle of *October*, with pretty long Stalks to the Bunches, and hung them on Strings in Rows in their Kitchen, at such a Distance as not to touch each other; and about *Christmas* these Grapes would be so ripen'd by the Warmth of the Room, as to eat extremely well.

19. *VITIS acino rubro duriori, sapore dulci. Garidel.* The Greek Grape. This is a middle-siz'd Grape, of a deep-red Colour; the Skin is very tough, and the Stones are small: this is by many People call'd the Brick Grape. In a kindly Season, when these Grapes ripen well, they make excellent Wine; but it must have a good Wall, otherwise it will not ripen in *England*.

20. *VITIS pergulana uva perampla, acino oblongo duro, majori & subviridi. Garidel.* The Pearl Grape, call'd in *Provence*, *Pendoulau*, or *Vin de Ponso*. This is a large, oblong Grape, of a greenish-white Colour;

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lour; the Juice has a Mixture of sweet and sour, and it is late ripe.

21. *Vitis uva perampla, acinis nigricantibus majoribus.* The *St. Peter's Grape*, or *Hesperian*. The Berries of this Sort are very large, round, and of a deep-black Colour when ripe; the Bunches are very large, and have two Shoulders to them; the Juice is very rich, and a little ting'd with Red; the Leaves of this Sort are remarkably jagged, so as to be known when there is no Fruit upon the Vines: it is late ripe. I believe this is the same Sort which the *French* call *Gros Noir d'Espagne*, i. e. Great Black *Spanish*.

22. *La Malvoise, i. e. Malmsey Grape*, is a middle-siz'd Fruit, of a muddy-red Colour; its Juice is very rich and soft; the Bunches are large; and it is a great Bearer: this ripens toward the Latter-end of *September*.

23. *Malvoise Musquée, i. e. the Malmsey Muscadine.* This is a middle siz'd Grape, rather long than round, of a rich musky Flavour when ripe. This is one of the Sorts of Grapes from which the *Madeira Wine* is made. It ripens late in *England*.

24. The red *Hamburgh Grape*. The Berries of this Kind are large, and of a redish Colour, cover'd with a Flue; the Bunches are large; and it is a good Bearer. This ripens toward the End of *September*, and is a fine Grape. It was brought into *England* by Mr. *Warner* of *Rotherhithe*, who hath supply'd many curious Persons with it.

25. The black *Hamburgh*, or *Warner Grape*. This has a middle siz'd Berry, rather long than round, of a fine black Colour, when ripe; the Juice is very rich, somewhat inclining to a musky Flavour. This ripens about the Middle of *September*.

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It was brought into *England* by Mr. *Warner*, with the former.

26. *Raisin Suisse, i. e. The Switzerland Grape.* This is preserv'd only as a Curiosity; the Fruit of this Kind are striped with White and Black, and sometimes divided into Quarters of those Colours; and many times half the Bunch is white, and the other half black; and some intire Bunches are white, and others black; so that it appears as if two Kinds had been grafted on the same Root. The Fruit is good for little but Shew; therefore one Plant of this Kind is enough in a Garden.

27. The White Muscat, or Frontiniac of *Alexandria*, by some call'd the *Jerusalem Muscat*, and *Gros Muscat*. The Berries are of an oval Shape, and very large; they grow very loose on the Punches, are very fleshy and firm, and, when ripe, are of a greenish-white, and have a delicate Flavour, somewhat like the white Frontiniac, but not quite so strong: this, being a very large Grape, rarely ripens in *England* without some Assistance: but as it is an excellent Fruit when ripe, it merits a Place against Hot-walls; where, with a little artificial Heat, it will ripen very well.

28. The Red Muscat, or Frontiniac of *Alexandria*, by some call'd Red *Jerusalem Muscat*. This is not quite so late in ripening as the former; therefore is more esteem'd about *Paris*, where, against good Walls, it ripens very well without any artificial Heat. The Berries of this Kind are not quite so large as those of the White; but they are of the same Form, and are equal in Goodness.

29. The White *Melie Grape*. The Berries of this Sort are of a middle Size, somewhat oval-shaped, and grow pretty close on the Bunches. When these are ripe, they are

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of a greenish-white, cover'd with a Flue, which wipes off: the Juice is very sweet, and makes an excellent white Wine. This ripens very well against Walls; and in a good Season will ripen on the Espaliers, or in Vineyards.

30. The White Morillon. This is a middle-siz'd Grape, almost round, and grows pretty close on the Bunches: the Juice is well flavour'd, but the Skin is tough. This ripens very well against good Walls.

31. The *Alicant* Grape. This is a large Fruit, of a deep-red Colour, cover'd with a blue Flue; the Bunches are also very large, and the Grapes grow sparsely on them. The Juice is rich and vinous, when the Grapes are thoroughly ripe; which seldom happens in this Country, unless they are brought forward with an artificial Heat. This is the Sort of Grape of which the strong *Spanish* Wine is made.

32. The White Auvernat. This is in Shape very like the black Auvernat Grape: it grows pretty close on the Bunches, and is of a muddy white Colour when ripe. The Juice of this Sort is not so palatable to eat as many others; but it makes an excellent white Wine.

33. The Grey Auvernat is also shaped somewhat like the former; but it is of a pale murky Colour, inclining to brown. This Sort produces its Grapes looser on the Bunches than the former, and ripens sooner; so it is better to plant for Vineyards, because it seldom fails to ripen in a good Aspect.

34. The Raisin Muscat. This is a large oblong pointed Grape, whose Berries are firm and fleshy, and are loosely placed on the Bunches. It is a very late Fruit, so will not ripen in *England* without the Assistance of an Hot-wall. This Sort of Grape

is frequently brought over from *Portugal*; and is sold in Winter in the *London* Markets.

Beside those here mention'd, there are a great Variety of other Sorts, which are the Produce of warmer Countries; some of which have been introduc'd lately into *England*; but as it is uncertain at present, how these will ripen in this Climate, I thought it proper to omit mentioning them in this Place; besides, it is very probable, that many of them may prove the same we already have, under different Names; for as these Fruits are brought from different Countries, so they seldom come with the same Names; and it is this hasty Temper to increase the Number of Sorts, which has confounded the present Catalogues of Fruits.

All the Sorts of Vines are propagated either from Layers or Cuttings, the former of which is greatly practis'd in *England*; but the latter is what I would recommend, as being much preferable to the other: for the Roots of Vines do not grow strong and woody, as in most Sorts of Trees, but are long, slender, and plain; so that when they are taken out of the Ground, they seldom strike out again, but shrivel and dry; so that they rather retard than help the Plants in their Growth, by preventing the new Fibres from pushing out; for which Reason I had rather plant a good Cutting than a rooted Plant, provided it be well chosen; and there is less Danger of its not growing.

But as there are few Persons who make Choice of proper Cuttings, or at least who form their Cuttings rightly, in *England*; so it will be proper to give Directions for this Work before I proceed. You should always make choice of such Shoots as are strong and well ripened, of

the last Year's Growth ; these should be cut from the old Vine, just below the Place where they were produced, taking a Knot of the former Year's Wood, which should be pruned smooth; then you should cut off the Upper-part of the Shoots, so as to leave the Cutting about sixteen Inches long : when the old Wood is cut at both Ends, near the young Shoot, the Cutting will resemble a little Mallet ; from whence *Columella* gives the Title of *Malleolus* to the Vine cuttings : but, in making the Cuttings after this manner, there can be but one taken from each Shoot ; whereas most Persons cut them into Lengths of about a Foot, and plant them all ; which is very wrong ; for the Upper-part of the Shoots is never so well ripened as the Lower-part, which was produc'd early in the Spring ; so that if they take Root, they never make so good Plants ; for the Wood of those Cuttings, being spongy and soft, admits the Moisture too freely ; whereby the Plants will be luxuriant in Growth ; but never so fruitful as such whose Wood is closer, and more compact ; nor will the Upper-part of the Shoots make so good Roots, as those which have a Joint of the old Wood.

When the Cuttings are thus prepar'd, they should be plac'd with their Lower-part into the Ground in a dry Place, laying some Litter about their Upper-parts, to prevent them from drying : in this Situation they may remain until the Beginning of *April* (which is the best time for planting them), when you should take them out, and wash them from the Filth they have contracted ; and if you find them very dry, you should let them stand with their Lower-parts in Water, six or eight Hours,

which will distend their Vessels, and dispose them for taking Root. Then set about preparing the Ground where the Plants are design'd to remain (whether against Walls, or for Standards) ; for they should not be removed again. But in this Place, I shall confine myself only to such as are planted either against Walls or Pales, for eating.

In preparing the Ground, you should consider the Nature of the Soil, which, if strong, and inclinable to Wet, is by no means proper for Grapes ; but where it thus happens, you should open a Trench against the Wall, which should be fill'd with Lime-rubbish, the better to drain off the Moisture ; then raise the Border with fresh light Earth, about a Foot thick ; so that it may be at least a Foot above the Level of the Ground ; then you should open the Holes about six Feet Distance from each other, putting one good strong Cutting into each Hole, which should be laid a little sloping, that their Tops may incline to the Wall ; but must be put in so deep, that the uppermost Eye may be level with the Surface of the Ground : for when there are two or three Eyes left above-ground, as is the common Method used by the *English* Gardeners, they all attempt to shoot ; so that the Strength of the Cutting is divided to nourish so many Shoots ; whereas, on the contrary, by burying the whole Cutting in the Ground, the Sap is all employ'd on one single Shoot, which consequently will be much stronger ; besides, the Sun and Air are apt to dry that Part of the Shoots which remains above-ground, and so often prevent their Buds from shooting.

Then, having plac'd the Cuttings into the Ground, you should fill up
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the Hole, gently preſſing down the Earth with your Foot, and raiſe a little Hill juſt upon the Top of the Cutting, to cover the upper Eye quite over, which will prevent it from drying. This being done, there is nothing more neceſſary, but to keep the Ground clear from Weeds, until the Cuttings begin to ſhoot; at which time you ſhould look over them carefully, to rub off any dangling Shoots, if ſuch are produc'd, and faſten the main Shoot to the Wall; which ſhould be conſtantly faſten'd up, as it is extended in Length, to prevent its breaking, or hanging down. You muſt continue alſo, during the Summer-ſeaſon, conſtantly rubbing off all lateral Shoots which are produc'd, leaving only the firſt main Shoot; and be ſure to keep the Ground conſtantly clear from Weeds, which, if ſuffered to grow, will exhaust the Goodneſs of the Soil, and ſtarve the Cuttings.

The *Michaelmas* following, if your Cuttings have produc'd ſtrong Shoots, you ſhould prune them down to two Eyes, which, tho' by ſome People thought to be too ſhort, yet I am ſatisfy'd, from ſeveral Experiments, to be the beſt Method: the Reaſon for adviſing the pruning the Vines at this Seaſon, rather than deferring it till Spring, is, becauſe the tender Parts of thoſe young Shoots, if left on, are ſubject to decay in Winter, and imbibe ſome noxious Matter from the Air, which greatly weakens their Roots; ſo that if they are cut off early in Autumn, the Wounds will heal over before the bad Weather, and thereby the Roots will be greatly ſtrengthen'd.

In the Spring, after the cold Weather is paſs'd, you muſt gently dig up the Borders, to looſen the Earth; but you muſt be very care-

ful in the doing of this, not to injure the Roots of your Vines: you ſhould alſo raiſe the Earth up to the Stems of the Plants, ſo as to cover the old Wood, but not ſo deep as to cover either of the Eyes of the laſt Year's Wood: After this they will require no farther Care until they begin to ſhoot, when you ſhould look over them carefully, to rub off all weak dangling Shoots, leaving no more than the two Shoots, which are produc'd from the two Eyes of the laſt Year's Wood, which ſhould be faſten'd to the Wall; and ſo from this, until the Vines have done ſhooting, you ſhould look them over once in three Weeks, to rub off all lateral Shoots, as they are produc'd, and to faſten the two main Shoots to the Wall, as they are extended in Length, which muſt not be ſhorten'd before the Middle of *July*, when it will be proper to nip off their Tops, which will ſtrengthen the lower Eyes. And during the Summer-ſeaſon you muſt conſtantly keep the Ground clear from Weeds; nor ſhould you permit any Sort of Plants to grow near the Vines; which would not only rob them of Nouriſhment, but ſhade the lower Parts of the Shoots, and thereby prevent their ripening; which will not only cauſe their Wood to be ſpongy and luxuriant, but render it leſs fruitful.

At *Michaelmas* you ſhould prune theſe again, leaving three Buds to each of the Shoots, provided they are ſtrong; otherwiſe it is better to ſhorten them down to two Eyes; for it is a very wrong Practice to leave much Wood upon young Vines, or to leave their Shoots too long, which greatly weakens the Roots; then you ſhould faſten them to the Wall, drawing each of them out horizontally from the Stem; and, in the Spring, dig the Borders as before.

The third Season, you must go over the Vines again, as soon as they begin to shoot, rubbing off all Dangers, as before, and training in the leading Shoots, which this Season may be supposed to be two from each Shoot of the last Year's Wood; but if they attempt to produce two Shoots from one Eye, the weakest of them must be rubbed off; for there should never be more than one allowed to come out of an Eye. If any of them produces Fruit, as many times they will the third Year, you should not stop them, so soon as is generally practised upon the bearing Shoots of old Vines, but permit them to shoot forward till *Midsummer*; at which time you may pinch off the Tops of the Shoots; for if this were done too soon, it would spoil the Buds for the next Year's Wood, which in young Vines must be carefully preserv'd, because there are no Shoots laid in on purpose for Wood, as is commonly practis'd on old Vines.

During the Summer you must constantly go over your Vines, and displace all weak lateral Shoots as they are produc'd, and carefully keep the Ground clear from Weeds, as was before directed, that the Shoots may ripen well: which is a material thing to be observ'd in most Sorts of Fruit-trees, but especially in Vines; which seldom produce any Fruit from immature Branches. These things, being duly observ'd, are all that is necessary in the Management of young Vines: I shall therefore proceed to lay down Rules for the Government of grown Vines, which I shall do as briefly as possible. And,

First, Vines rarely produce any bearing Shoots from Wood that is more than one Year old; therefore great Care should be taken to have such Wood in every Part of the

Trees; for the Fruit are always produc'd upon Shoots which come out from the Buds of the last Year's Wood; so that it is always upon the same Year's Shoots. The Method commonly practis'd by the Gardeners in *England* is, to shorten the Branches of the former Year's Growth, down to three or four Eyes, at the time of pruning; tho' there are some Persons, who leave these Shoots four or five Eyes long; and affirm, that by this Practice they obtain a greater Quantity of Fruit: but this is very wrong, since it is impossible, that one Root can nourish forty or fifty Bunches of Grapes, so well as it can ten or twelve; so that what is gotten in Number, is lost in their Magnitude; besides, the greater Quantity of Fruit there is left on Vines, the later they are ripen'd, and their Juice is not so rich. And this is well known in the Wine-countries, where there are Laws enacted to direct the Quantity of Shoots, and the Number of Eyes that those are to have upon each Shoot, lest, by overbearing them, they not only exhaust and weaken the Roots, but thereby render the Juice weak, and so destroy the Reputation of their Wine.

Wherefore the best Method is, to leave the bearing Shoots about four Eyes in Length, because the lowermost never produce, and three Buds are sufficient; for each of these will produce two or three Bunches; so that from each of those Shoots there may be expected six or eight Bunches, which is a sufficient Quantity. These Shoots must be laid in about eighteen Inches asunder; for if they are closer, when the Side-shoots are produc'd, there will not be room enough to train them in against the Wall, which should always be observ'd; and as their Leaves are ve-

ry large, the Branches should be left at a proportionable Distance, that they may not croud or shade each other.

In Pruning, you should always observe to make the Cut just above the Eye, sloping it backward from it, that if it should bleed, the Sap might not flow upon the Bud : and where there is an Opportunity of cutting down some young Shoots to two Eyes, in order to produce vigorous Shoots for the next Year's Bearing, it should always be done, because the stopping of those Shoots which have Fruit upon them in *May*, often spoils the Eyes for Bearing : and this reserving of new Wood is what the *Vignerons* abroad always practise in their Vineyards. The best Season for pruning of Vines is about the Middle or End of *October*, for the Reasons before laid down.

The Latter-end of *April*, or the Beginning of *May*, when the Vines begin to shoot, you must carefully look them over, rubbing off all small Buds which may come from the old Wood, which only produce weak dangling Branches ; as also when two Shoots are produc'd from the same Bud, the weakest of them should be displac'd, which will cause the others to be the stronger ; and the sooner this is done, the better it is for the Vines.

In the Middle of *May*, you must go over them again, rubbing off all the dangling Shoots, as before ; and at the same time you must nail up all the strong Branches ; so that they may not hang from the Wall ; for if their Shoots hang down, their Leaves will be turn'd the wrong Way ; which, when the Shoots are afterward nail'd upright, will have their back Surface upward ; and until the Leaves are turn'd again, and have taken their right Dire-

ction, the Fruit will not thrive ; so that the not observing this Management, will cause the Grapes to be a Fortnight later before they ripen : besides, by suffering the Fruit to hang from the Wall, and be shaded with the Closeness of the Branches, it is greatly retarded in its Growth : therefore, during the growing Season, you should constantly look over the Vines, displacing all dangling Branches, and wild Wood ; and fasten up the other Shoots regularly to the Wall, as they are extended in Length ; and toward the Latter-end of *May*, you should stop the bearing Branches, which will strengthen the Fruit, provided you always leave three Eyes above the Bunches ; for if you stop them too soon, it will injure the Fruit, by taking away that Part of the Branch which is necessary to attract the Nourishment to the Fruit, as also to perspire off the Crudities of the Sap, which is not proper for the Fruit to receive.

But although I recommend the stopping those Shoots which have Fruit at this Season, yet you should by no means stop those which are intended for bearing the next Year, before the Beginning of *July*, lest, by stopping them too soon, you cause the Eyes to shoot out strong lateral Branches, whereby they will be greatly injured. These therefore should be trained upright against the Wall until that time ; when their Tops may be nipp'd off, to give Strength to the lower Buds.

During the Summer-season, you should be very careful to rub off all dangling Branches, and train up the Shoots regularly to the Wall, which will greatly accelerate the Growth of the Fruit ; and also admit the Sun and Air to them, which is absolutely necessary to ripen, and give the

the Fruit a rich Flavour ; but you must never divest the Branches of their Leaves, as is the Practice of some Persons ; for altho' the admitting of the Sun is necessary to ripen them, yet if they are too much exposed thereto, their Skins will be tough, and they will rarely ripen : besides, the Leaves being absolutely necessary to nourish the Fruit, by taking them off, the Fruit is starv'd, and seldom comes to any Size, as I have several times observ'd ; therefore a great Regard should be had to the Summer Management of the Vines, where Persons are desirous to have their Fruit excellent, and duly ripen'd.

When the Fruit are all gather'd, you should prune the Vines, whereby the Litter of their Leaves will be intirely remov'd at once, and the Fruit will be the forwarder the succeeding Year, as has been before observ'd.

As many of the richest and best Sorts of Grapes will not ripen in *England*, unless the Season proves very warm, or the Soil and Situation are very favourable ; so there have been many Hot-walls built to accelerate this Fruit, and bring it to full Perfection by artificial Heat ; and as these succeed very well, when they are properly contriv'd, and the Vines rightly manag'd, I shall here give proper Directions, which, if duly attended to, will be sufficient to instruct Persons in both.

The Method of building Hot-walls will be treated under the Article *Wall* ; so I shall pass it over in this Place, and proceed to the preparing of the Ground for planting. The Borders against these Hot-walls should have the Earth taken out two Feet deep (provided the Ground is dry), otherwise one Foot will be sufficient ; because in wet Land the

Borders should be raised at least two Feet above the Level of the Ground, that the Roots of the Vines may not be injured by the Wet. When the Earth is taken out, the Bottom of the Trench should be filled with Stones, Lime-rubbish, &c. a Foot and half thick, which should be level'd and beaten down pretty hard. The Trenches should be made five Feet wide at least, otherwise the Roots of the Vines will in a few Years extend themselves beyond the Rubbish ; and finding an easy Passage downward, will run into the moist Ground, and thereby imbibe so much Wet, as to lessen the vinous Flavour of the Grapes. But before the Rubbish is filled into the Trench, it is a better Method to raise a nine-inch Wall, at five Feet Distance from the Hot-wall, which will keep the Rubbish from intermixing with the neighbouring Earth, and also confine the Roots of the Vines to the Border in which they are planted, so that they cannot reach to the Moisture of the Ground about them. This nine-inch Wall should be rais'd to the Height of the intended Border ; so will be of great Use to lay the Plate of Timber of the Frames upon, which will be necessary to cover the Vines when they are forced, whereby the Timbers will be better preserv'd from rotting ; and where the Borders are rais'd to any considerable Height above the Level of the Ground, these Walls will preserve the Borders from falling down into the Walks. But in carrying up of these Walls, it will be proper to leave little Openings, about eight or ten Feet Distance, to let the Water pass off ; because when the Rubbish at the Bottom of the Trench unites and binds very hard, the Water cannot easily find a Passage through it : therefore it will be the better

better Method to leave these small Passages in the Wall, lest the Moisture, being confin'd at Bottom, should be pent up as in a Ditch; which will be of ill Consequence to the Vines.

When the Walls are finish'd, and thoroughly dry, the Rubbish should be fill'd in, as before directed; then there should be fresh light Earth laid on, about a Foot and an half thick, which will be a sufficient Depth of Soil for the Vines to root in. These Borders should be thus prepar'd at least a Month or six Weeks before the Vines are planted, that they may have time to settle. The best time to plant them, is about the End of *March*, or the Beginning of *April*, according as the Season proves early or late. These I would also advise to be planted with Cuttings, rather than rooted Plants, for the Reasons before assign'd; but there should be two Cuttings put into each Hole, lest one of them should fail; for if both should succeed, the weakest of them may be easily drawn out the following Spring. These Cuttings should be well chosen from good bearing Vines, and the Shoots should be well ripen'd, otherwise they will never make good Plants. The Distance these Vines should be allowed, is the same as for common Walls; *i. e.* about six Feet. In planting them there should be Holes open'd with a Spade, about fourteen or fifteen Inches deep; for if there be but three or four Inches of good Earth under the Foot of the Cuttings, it will be sufficient. The two Cuttings should be laid in the Hole a little sloping, but in such a manner as not to touch or cross each other; because, if they do, when one of them is taken away the following Spring, it cannot be done without disturbing the other. Then the Earth should be filled into the Holes, and gently

pressed with the Foot to the Cuttings, and raised in an Heap over them, so as just to cover the uppermost Eyes of the Cuttings. Afterward lay a little Mulch on the Surface of the Ground about the Cutting, to prevent the Sun and Air from drying the Earth; and if the Spring should prove very dry, they should have some Water once a Week, which will be as often as these Cuttings require it; for nothing will hurt them sooner than too much Water, which rots their Bark, and destroys them. If these Cuttings are well chosen, and the Instructions here laid down duly observ'd, they will make strong Shoots the first Summer: for I have frequently planted Cuttings which have shot five Feet in one Year; but then I carefully rubb'd off all the side-dangling Shoots as they were produc'd, and never permitted more than one Shoot to remain on each Cutting; which is what should always be observ'd by those who have the Management of Vines. With this Direction there will be little Hazard of the Cuttings taking Root; for in upward of five hundred Cuttings, which I receiv'd from *Italy*, and which had been cut off from the Vines in the Beginning of *November*, wrapp'd up in Moss, and put on board the Ship (which did not arrive at the Port of *London* until *March*, so that they were full four Months cut off before they were planted), there were not twenty of the Number which failed; and many of them shot above six Feet the first Season.

As I have directed the pruning of Vines to be performed in Autumn (which is without Dispute the best Season for this Work); so, in preserving of the Cuttings till the planting Season, I have advised them to

be

be cut to their Lengths, and their Ends laid into the Ground, and then cover'd with Litter to keep the Air from them : but, since, I have found it a much better Method not to shorten the Shoots, from which the Cutting is to be made, but lay their Ends just into the Ground, about two Inches deep, and so leave them at full Length, only observing to cover them with dry Litter or Peas-haulm in frosty dry Weather ; though in moist Weather the Covering should not remain on, because it would make the Cuttings grow mouldy, which would greatly injure them. Then in the Spring, when they are to be planted, they should be taken out of the Ground, and their Upper-part cut off, so as to reduce them to about fourteen Inches in Length, according to the Distance of the Buds or Eyes ; for those Cuttings, whose Buds grow pretty close together, need not be left more than one Foot long ; but in others fourteen Inches will be full short. The leaving the Upper-part of the Shoots on all the Winter, is of great Service to the Cuttings ; because when they are cut off in Autumn, the Air penetrates the wounded Part, and greatly injures the lower Eyes.

The Management of these Vines, for the three first Years after planting, being the same as is practis'd for those against common Walls, I shall not repeat it in this Place, having fully treated of that already ; only will observe, that, during these three Years, the Vines should be encourag'd as much as possible, and the Shoots not left too long, nor too many in Number on each Root, that they may be duly ripen'd, and prepar'd for bearing the fourth Year, which is the soonest they should be forced ; for when any Sorts of Fruit-trees are forced by Fire too young, they seldom continue above

three or four Years, and, during that time, produce very weak Shoots ; and what Fruit they produce, is small, and not well-flavour'd ; so that, in being over-hasty to save a Year or two, very often the whole Design is lost ; for, unless the Trees are in a proper Condition to bear much Fruit, it is not worth while to make Fires for a small Quantity of starved ill-tasted Fruit ; the Expence and Trouble being the same for ten or twelve Bunches of Grapes, as it will be for an hundred or more.

These Vines should not be forc'd every Year ; but with good Management they may be forc'd every other Year ; though it would be yet better, if it were done only every third Year : therefore, in order to have a Supply of Fruit annually, there should be a sufficient Quantity of Walling built, to contain as many Vines as will be necessary for two or three Years ; so that by making the Frames in Front moveable, they may be shifted from one Part of the Wall to another, as the Vines are alternately forced. Therefore I would advise about forty Feet in Length of Walling, to be each Year forced, which is as much as one Fire will heat ; and when the Vines are in full Bearing, will supply a reasonable Quantity of Grapes for a middling Family.

In most Places where these Hot-walls have been built, they are commonly planted with early Kinds of Grapes, in order to have them early in the Season ; but this, I think, is hardly worth the Trouble ; for it is but of little Consequence to have a few Grapes earlier by a Month or six Weeks, than those against common Walls ; therefore I should advise, whenever a Person is willing to be at the Expence of these Walls, that they may be planted with some of the best Kinds of Grapes, which rarely

rarely come to any Perfection in this Country, without the Assistance of some artificial Heat ; of which the following Sorts are the most valuable.

The Red Muscat of *Alexandria*.

The White Muscat of *Alexandria*.

The Raisin Muscat, or *Frontiniac*.

The Red *Frontiniac*.

The Grisly *Frontiniac*.

The White *Frontiniac*.

The Black *Frontiniac*.

The *Malmsey* Muscadine.

When the Vines which are planted against the Hot-walls are grown to full Bearing, they must be pruned, and managed after the same manner as hath been directed for those against common Walls ; with this Difference only ; *viz.* that those Seasons when they are forced, the Vines should be carefully managed in the Summer for a Supply of good Wood, against the time of their being forced ; so that it will be the better Method to divest the Vines of their Fruit, in order to encourage the Wood : for as few of the Sorts will ripen without Heat, it is not worth while to leave them on the Vines, during the Seasons of resting, except it be the common *Frontiniacs*, which in a good Season will ripen without artificial Heat ; but of these Sorts I would not advise many Grapes to be left on ; because as the Design of resting the Vines is, to encourage and strengthen them ; therefore all possible Care should be had, that the young Wood is not robbed by overbearing ; for those Years when the Vines are forced, the Joints of the young Wood are generally drawn farther asunder, than they ordinarily grow in the open Air ; so that when they are forc'd two or three Years successively, the Vines are so much exhausted, as not to be recover'd into a good bearing State, for some Years ;

especially if they are forc'd early in the Season, or where great Care is not taken in the Summer, to let them have a proper Share of free Air, to prevent their being drawn too much, and to ripen their Shoots. Those Years when the Vines are forc'd, the only Care should be to encourage the Fruit, without having much regard to the Wood ; so that every Shoot should be pruned for Fruit, and none of them shortened for a Supply of young Wood ; because they may be so manag'd in the other Year's Pruning, as to replenish the Vines with new Wood. Those Vines which are design'd for Forcing in the Spring, should be pruned early the Autumn before ; that the Buds which are left on the Shoots, may receive all possible Nourishment from the Vine ; and at the same time the Shoots should be fasten'd to the Trelase in the Order they are to lie ; but the Glasses should not be placed before the Vines till about the End of *January* : at which time also the Fires must be lighted : for if they are forced too early in the Year, they will begin to shoot before the Weather will be warm enough to admit Air to the Vines ; which will cause the young Shoots to draw out weak, and thereby their Joints will be too far asunder ; so consequently there will be fewer Grapes on them, and those Bunches which are produced will be smaller, than when they have a sufficient Quantity of Air admitted to them every Day.

If the Fires are made at the time before directed, the Vines will begin to shoot the Latter end of *February* ; which will be six Weeks earlier than they usually come out against the common Walls ; so that by the time that other Vines are shooting, these will be in Flower ; which will be

early

early enough to ripen any of these Sorts of Grapes perfectly well. The Fires should not be made very strong in these Walls; for if the Air is heated to about ten Degrees above the temperate Point, on the Botanical Thermometers, it will be sufficiently warm to force out the Shoots leisurely; which is much better than to force them violently. These Fires should not be continued in the Day-time, unless the Weather should prove very cold, and the Sun not appearing to warm the Air; at which times it will be proper to have small Fires continued all the Day; for where the Walls are rightly contrived, a moderate Fire made every Evening, and continued till Ten or Eleven of the Clock at Night, will heat the Wall, and warm the inclosed Air to a proper Temperature; and as these Fires need not be continued longer than about the Middle or End of *May* (unless the Spring should prove very cold), so the Expence of the Fire will not be very great; because they may be contrived to burn either Coal, Wood, Turf, or almost any other Sort of Fuel; tho' where Coal is to be had reasonable, it is the evenest Fuel for these Fires, and will not require much Attendance.

When the Vines begin to shoot, they must be frequently looked over to fasten the new Shoots to the Trellase, and to rub off all dangling Shoots: in doing of which great Care must be taken; for they are very tender, and very subject to break when any Violence is offer'd. The Shoots should also be trained very regular, so as to lie as near as possible at equal Distances, that they may equally enjoy the Benefit of the Air and Sun; which is absolutely necessary for the Improvement of the Fruit. When the Grapes are

formed; the Shoots should be stopped at the second Joint beyond the Fruit, that the Nourishment may not be drawn away from the Fruit, in useless Shoots, which must be avoided as much as possible in these forced Vines, upon which no useless Wood should be left; which will shade the Fruit, and exclude the Air from it by their Leaves.

As the Season advances, and the Weather becomes warm, there should be a proportionable Share of free Air admitted to the Vines every Day; which is absolutely necessary to promote the Growth of the Fruit; but the Glasses should be shut close every Night, unless in very hot Weather; otherwise the cold Dews in the Night will retard the Growth of the Fruit. The Bunches of the White *Frontinac*, and the Raisin Muscat, should also be looked over, and the small Grapes cut out with Scissars, in order to thin them; for these Sorts grow so close together on the Bunches, that the Moisture is detained between the Grapes, which often occasions their rotting; and the Air being excluded from the Middle of the Bunches, the Grapes never ripen equally; which by this Method may be remedied, if done in time; and as these Grapes are protected by the Glasses, from the Blights which frequently take those which are expos'd, there will be no Hazard in thinning these Grapes soon after they are set; at which time it will be easier for this Operation, than when the Grapes are grown larger, and consequently will be closer together. But in doing of this, the Bunches must not be roughly handled; for if the Grapes are the least bruised, or the Blue which there naturally is upon them, be rubbed off, their Skins will harden, and turn of a brown Colour; so the
Fruit

Fruit will never thrive after. Therefore the Scissars which are used for this Operation, should have very narrow Points, that they may be more easily put between the Grapes, without injuring the remaining ones. The other Sorts of Grapes which I have recommended for these Hot-walls, do not produce their Fruit so close together on the Bunches; so they will not require this Operation, unless by any Accident they should receive a Blight, which often occasions a great Inequality in the Size of the Grapes; which, whenever it thus happens, will require to be remedied by cutting off the small Grapes, that the Bunches may ripen equally, and appear more sightly.

By the Beginning of *July*, these Grapes will be full-grown; therefore the Glasses may be kept off continually, unless the Season should prove very cold and wet; in which Case they must be kept on every Night, when the Days are cold or wet, and only open'd when the Weather is favourable; for as the racy vinous Flavour of these Fruit is increased by a free Air, so, during the time of their ripening, they should have as large a Share as the Season will admit to be given them. But when the cold Nights begin to come on in *August*, the Glasses must be every Night shut to exclude the Cold, otherwise it will greatly retard the ripening of the Fruit; for altho' the Vines are brought so forward in the Spring, as that the Fruit by this Season are quite turned to their Colour; yet if they are expos'd to the cold Dews, and the morning Frosts, which frequently happen toward the latter-part of *August*, it will prevent the Fruit from ripening so kindly as when they are guarded from it. When the Grapes begin to ripen, they must be carefully guarded

against Birds and Wasps, otherwise they will be in Danger of Destruction in a short time: to prevent which, the Vines should be carefully cover'd with Nets, so as to exclude the Birds, which will make great Havock with the Grapes, by breaking of their Skins; and if there are a few Twigs cover'd with Bird-lime, plac'd here and there on the Outside of the Nets, it will be of Service; because the Birds are often so bold as to attempt to break the Nets to get to the Grapes, and so may be entangled on these Twigs; from which, whenever that happens, they should not be disengaged, but suffer'd to remain to keep off their Companions; and if they get off themselves, it will have the desired Effect; for there will few other Birds come to the same Place that Season, as I have more than once experienced.

As to the Wasps, the best Method is to hang up some Phials, about half filled with sugar'd Water, and rub the Necks of the Phials with a little Honey, which will draw all the Wasps to them; which, by attempting to get at the Liquor, will fall into the Phials, and be drowned. These should be carefully look'd over once in three or four Days, to take out the Wasps, and destroy them, and to replenish the Phials with Liquor. If this be duly observ'd, and the Phials placed in time, before the Grapes are attack'd, it will effectually prevent their being injur'd; but where these Precautions are not taken, the Grapes will be in Danger of being absolutely destroyed: for as these early Grapes will turn Colour long before any others against common Walls, they are in much more Danger, there being no other Fruit for them in the Neighbourhood; whereas, when Grapes in general begin to ripen, there is a
large

large Quantity in almost every Garden; so that if they destroy a Part in each Garden, yet there will be a greater Chance to have some escape, than where there is only one Wall for them to attack.

These Sorts of Grapes, being forced in the manner before directed, will begin to ripen early in *September*, especially the Black and Red *Frontiniacs*, which will be fit for the Table a Fortnight earlier than the other Sorts; but as the Design of forcing them is to have them in as great Perfection as possible in this Climate, they should not be gather'd until they are thorough-ripe; for which Reason, some of the later Sorts should be left on the Vines till *October*, or sometimes longer; but then the Glasses should be kept over them in wet and cold Weather, to protect the Fruit from it: but whenever the Weather is fair, the Glasses must be open'd to let in the free Air; otherwise the Damps, arising from the Earth at that Season, will cause a Mouldiness upon the Grapes, which will rot them: so that if the Season should prove very cold and wet, it will be proper to make a small Fire every Night, to dry off the Damps, and prevent this Injury. By this Method the Grapes may be continued upon the Vines until the Middle or Latter-end of *November*, when some of the large late-ripe Sorts will be in very great Perfection. But most People in *England* gather their Grapestoo soon, never suffering them to remain on the Vines to ripen, even in the warmest Seasons; when, if they are left on till after *Michaelmas*, they will be perfectly good.

Of late Years many Persons have planted Grapes against Espaliers, which, in some Places, have succeeded very well in good Seasons; but if these are not planted in a good

Soil, and to a proper Aspect, and the Sorts rightly chosen, they seldom produce any Fruit which are fit to be eaten. The Soil proper to plant Vines in Espaliers, should be the same as hath been directed for Vineyards; viz. either a chalky or gravelly Bottom, with about a Foot and half of light hazel Earth on the Top, a little sloping to the South or South-east, that the Wet may easily find a Passage, so as not to remain on the Ground. In such a Soil situated to the Sun, and screened from cold Winds, there are several Sorts of Grapes, which in warm Seasons will ripen very well in *England*.

But there are some curious Persons who line the Backside of their Espaliers with low Reed-hedges, and others who do it with thin slit Deals; both of which are a good Defence to the Vines against Blights in the Spring, and accelerate the ripening of the Grapes; so that in tolerable Seasons they will come to good Maturity. Neither of these Methods is very expensive; for these close Fences need not be more than four Feet high; because the Vines, being to be managed after the same manner as those in Vineyards, will never rise above the Height of a Man; and the bearing Shoots must always be trained about two Feet above the Surface of the Ground; so that the Fruit-branches will be always below the Top of the close Fences; and as for the upright Shoots, which are design'd for the next Year's Bearing, it matters not how much they rise above the Fence; so these may have a loose Trelase, to which they may be fasten'd, to prevent their overhanging of the Fruit.

In the making of these Kinds of close Espaliers for Grapes, it will be proper to lay one strong oaken Plank
(such

(such as are procur'd in breaking up of old Ships or Barges) next the Surface of the Ground, which will last many Years sound, and be very useful in supporting of the Fences. If these Planks are fifteen Inches broad, as they may always be readily procured; then, if the Upper-part of the Fence be Reeds, there may be two Lengths cut out of them (provided the Reeds are of a due Length), without including their Tops. In the Front of these Hedges should be a slight Trelase, to fasten the Vines to, which may be made of Ash-poles. The upright Poles of these Trelases need not be nearer together than eighteen Inches; and if there are three cross Poles, at about a Foot asunder, they will be sufficient to fasten the bearing Shoots of the Vines at proper Distances, in the manner they are design'd to be train'd; which should be in such Positions, as that the Fruit may not be overshadow'd by the Branches. And if the upright Poles are cut so long, as to be a Foot and half above the Reeds, they will be tall enough to support the upright Shoots for the next Year's Bearing; which, being trained singly at proper Distances, will have the Advantage of the Sun and Air to ripen the Wood, much better than where four or five Shoots are fasten'd to the same Pole.

To this Trelase the Reeds may be fasten'd with Hoops on the Back-side, after the manner usually practis'd in making of common reed Fences; and if on the Top of the Reeds there is fasten'd a thin Slip of Deal, to secure the Tops of the Reeds from being broken, it will preserve them a long time. In making of these Fences the Reeds should not be laid too thick; for that will not only be more Expence, but will

be troublesome to fasten, and not last so long, as when they are made of a moderate Thickness. Therefore, as the Reeds will be cut into two Lengths, each Bundle will spread about six Feet in Length; observing first to spread the Bottom-parts of the Bundles, which contain the largest Ends of the Reeds, the whole Length; and then the Upper-parts of the Reeds should be revers'd, and spread in Front of the other; which will make the Upper-part of the Fence almost as thick as the Bottom. But neither these, nor the boarded Fences, need be made till the Vines are in full Bearing; which will be the fourth or fifth Year after planting, according to the Progress they make; during which time the Shoots may be supported by any common Stakes. For if the Fences are made before the Vines are planted, as is frequently practis'd, they will be half-decayed by the time the Vines are fit to bear; and before this time, the Fences are of no Use to them.

The Sorts of Grapes which are proper to plant against these Fences, are,

The Miller Grape.

The Black Morillon.

The Chasselas White.

The White Muscadine.

The *Melie* Grape.

The Sweet Water.

The *Auvernat*, or true *Burgundy*.

These, if well manag'd, will ripen very well, provided the Season is tolerably good, and will come in soon after those on the Walls; so that if they are taken care of, by hanging of Mats before them, when the Nights prove cold in Autumn, and are permitted to hang till *October*, the Fruit will prove very good. But where the Sweet-water Grape is planted against these Fences, they

will require to be cover'd in the Spring, at the time when they are in Flower, if there should be cold Nights; otherwise the Bunches will receive a Blast, which will destroy the greatest Part of the Grapes; so that many times there will not be more than six or eight good Grapes on each Bunch; and the others will be small starved Fruit, hardly so large as the smallest Peas.

In planting of these Vines, either for open Espaliers, or the close Fences, it should be perform'd in the same manner as for Vineyards, which should be from Cuttings planted six Feet asunder, putting two into each Hole. And as these are only designed for the Table, a single Row of a moderate Length will be sufficient to supply a Family, where there are others against Walls to come before them. But where a Person is inclinable to have more Rows than one, they should be plac'd twelve Feet asunder, that they may equally enjoy the Sun and Air.

As to the Pruning and other Management of these Vines, that being the same as for those in the Vineyard, I shall not repeat it in this Place, it being fully treated of before; and to which I have nothing here to add, more than that I find the Grape which is preferr'd by the most skilful *Vignerons* in *France*, and what they call the *Auvernat*, as before-mention'd, is the same which in *England* is call'd the *Blue Cluster Grape*, and hath been long in this Country planted as an eating Grape against Walls; so that from these, Cuttings may be easily procur'd.

There have been many Vineyards of late Years planted in *England*; but very few of them have answered the Expectations of the Planters. Indeed the greater Part of them have been situated in Places and

Soils very improper for this Purpose; and scarce any of the Persons who have engaged in this Undertaking, have had sufficient Knowledge how to make the Wine; so that in those Seasons when the Grapes have ripen'd tolerably well, the Wine which has been made from them, has been very indifferent, which has discouraged others from attempting to plant Vineyards in *England*: but as there may be some Persons who may be inclined to make farther Trials; so I shall give such Directions for the Choice of Soils and Situations, as also for the Culture of Vineyards, and the Method of making the Wine, as have been found to succeed best in this Country.

Of Vineyards in England.

The first and great Thing to be consider'd in planting Vineyards, is the Choice of Soils and Situations; which if not rightly chosen, there will be little Hopes of Success; for upon this the whole Affair greatly depends. The best Soil for a Vineyard in *England* is such, whose Surface is a light sandy Loam, and not above a Foot deep above the Gravel or Chalk, either of which Bottoms are equally good for Vines: but if the Soil is deep, or the Bottom either Clay, or a strong Loam, it is by no means proper for this Purpose; for altho' the Vines may shoot vigorously, and produce a great Quantity of Grapes, yet these will be later ripe, fuller of Moisture; and so consequently their Juice not mature, nor well digested, but will abound with Crudity, which in fermenting will render the Wine sour and ill-tasted; which is the common Complaint of those who have made Wine in *England*.

Nor is a very rich, light, deep Soil, such as is commonly found near *London*, proper for this Purpose; because

because the Roots of these Vines will be enticed down too deep to receive the Influences of Sun and Air, and hereby will take in much crude Nourishment; whereby the Fruit will be render'd less valuable, and be later ripe: which is of ill Consequence to these Fruits, which are known to imbibe a great Share of their Nourishment from the Air, which, if replete with Moisture (as is commonly the Case in Autumn) must necessarily contribute greatly to render the Juices less perfect: therefore great Attention should be had to the Nature of the Soil upon which they are planted.

The next Thing necessary to be consider'd, is the Situation of the Place; which, if possible, should be on the North Side of a River, upon an Elevation inclining to the South, with a small gradual Descent, that the Moisture may the better drain off; but if the Ground slopes too much, it is by no means proper for this Purpose, but if, at a Distance from this Place, there are larger Hills, which defend it from the North and North-west Wind, it will be of great Service; because hereby the Sun's Rays will be reflected with a greater Force; and the cold Winds, being kept off, will render the Situation very warm. Add to this, a chalky Surface; which if those Hills do abound with (as there are many Situations in *England* which do), it will still add to the Heat of the Place, by reflecting a greater Quantity of the Sun's Rays.

The Country about this should be open and hilly; for if it be much planted, or low and boggy, the Air will constantly be fill'd with moist Particles, occasion'd by the plentiful Perspiration of the Trees, or the Exhalations from the adjoining Marshes, whereby the Fruit will be

greatly prejudic'd (as was before observ'd). These Vineyards should always be open to the East, that the morning Sun may come on them to dry off the Moisture of the Night early, which, by lying too long upon the Vines, does greatly retard the ripening of their Fruit, and renders it crude and ill-tasted. And since the Fruit of Vines are rarely ever injur'd by Easterly Winds, there will be no Reason to apprehend any Danger from such a Situation; the South-west, North-west, and North Winds being the most injurious to Vineyards in *England* (as indeed they are to most other Fruit); so that, if possible, they should be shelter'd therefrom.

Having made choice of a Soil and Situation proper for this Purpose, the next thing to be done is, to prepare it for planting: in doing of which, the following Method should be observ'd: in the Spring it should be plow'd as deep as the Surface will admit, turning the Sward into the Bottom of each Furrow; then it should be well harrow'd, to break the Clods, and cleanse it from the Roots of noxious Weeds: and after this, it must be constantly kept plow'd and harrow'd for at least one Year, to render the Surface light; and hereby it will be render'd fertile, by imbibing the nitrous Particles of the Air (especially if it be long expos'd thereto before it is planted): then in *March* the Ground should be well plow'd again; and after having made the Surface pretty even, the Rows should be mark'd out from South-east to North-west, at the Distance of ten Feet from each other; and these Rows should be cross'd again at five or six Feet Distance, which will mark out the exact Places where each Plant should be plac'd; so that there will be ten

Feet Row from Row, and five or six Feet asunder in the Rows; nearer than which they ought never to be planted. And herein most People who have planted Vineyards, have greatly err'd, some having allow'd no more than five Feet Row from Row, and the Plants but three Feet asunder in the Rows; and others, who think they have been full liberal in this Article, have only planted their Vines at six Feet Distance every Way: but neither of these have allow'd a proper Distance to them, as I shall shew; for, in the first Place, where the Rows are set too close, there will not be room for the Sun and Air to pass in between them to dry up the Moisture; which, being detain'd amongst the Vines, must produce very ill Effects. And, secondly, where the Vines are plac'd in exact Squares so near together as six Feet, there can be no room for the Current of Air to pass between them, when their Branches are extended on each Side; and so consequently the Damps in Autumn will be entangled and detained amongst the Vines, to the great Prejudice of their Fruit. For since the Autumns in *England* are often attended with Rains, cold Dews, or Fogs; all proper Care should be taken to remove every thing which may obstruct the drying up the Damps which arise from the Ground.

The skilful *Vignerons* abroad are also sensible how much it contributes to the Goodness of their Vines to allow a large Space between the Rows; and therefore where the Quality of the Wine is more regarded than the Quantity, there they never plant their Vines at less than ten Feet Row from Row; and some allow twelve. It was an Observation of *Bellonius*, almost two hundred Years since, that in those Islands of the *Archipelago*,

where the Rows of Vines were placed at a great Distance, the Wine was much preferable to those which were close planted; and this he positively affirms to be the Case in most Countries where he had travell'd. Indeed, we need not have recourse to Antiquity for the Certainty of such Facts, when we are daily convinc'd of this Truth in all close Plantations of any kind of Fruit, where it is constantly observ'd, that the Fruits in such Places are never so well colour'd, so early ripe, nor near so well flavour'd, as those produc'd on Trees, where the Air can freely circulate about them, and the Rays of the Sun have full Access to the Branches, whereby their Juices are better prepar'd before they enter the Fruit.

Having thus consider'd the Distance which is necessary to be allowed to these Plants, we come next to the Planting: but in order to this, the proper Sorts of Grapes should be judiciously chosen; and in this Particular, we have egregiously erred in *England*. All the Vineyards at present planted here, are of the sweetest and best Sort of Grapes for Eating, which is contrary to the general Practice of the *Vignerons* abroad, who always observe, that such Grapes never make good Wine; and therefore, from Experience, make Choice of those Sorts of Grapes, whose Juice, after fermenting, affords a noble rich Liquor; which Grapes are always observ'd to be austere, and not so palatable. This is also agreeable to the constant Practice of our Cyder-makers in *England*, who always observe, that the best Eating-apples make but poor Cyder; whereas the more rough and austere Sorts, after being press'd and fermented, afford a strong vinous Liquor. And I believe it will

will be found true in all Fruits, that where the natural Heat of the Sun ripens and prepares their Juices, so as to render them palatable, whatever Degree of Heat these Juices have more, either by Fermentation, or from any other Cause, will render them weaker, and less spirituous. Of this we have many Instances in Fruits; for if we transplant any of our Summer or Autumn Fruits, which ripen perfectly in *England*, without the Assistance of Art, into a Climate a few Degrees warmer, these Fruits will be mealy and insipid: so likewise if we bake or stew any of these Fruits, they will be good for little, losing all their Spirit and Flavour by the additional Heat of the Fire; and such Fruits as are by no means eatable raw, are hereby render'd exquisite; and, when transplanted into a warmer Climate, have, by the additional Heat of the Sun, been also alter'd so as to exceed the most delicious of our Fruit in this Country.

From whence it is plain, that those Grapes which are agreeable to the Palate for Eating, are not proper for Wine; in making of which, their Juices must undergo a strong Fermentation: therefore since we have in *England* been only propagating the most palatable Grapes for Eating, and neglected the other Sorts, before we plant Vineyards, we should take care to be provided with the proper Sorts from abroad; which should be chosen according to the Sort of Wines intended to be imitated: tho' I believe the most probable Sort to succeed in *England*, is the Auvernat or true *Burgundy* Grape (which is at present very rare to be found in the *English* Vineyards; though it is a common Grape in the Gardens against Walls). This Sort of Grape is most preferr'd in

Burgundy, Champagne, Orleans, and most of the other Wine Countries in *France*; and I am inform'd, that it succeeds very well in several Places to the North of *Paris*, where proper Care is taken of their Management: so that I should advise such Persons as would try the Success of Vineyards in *England*, to procure Cuttings of this Grape from those Countries; but herein some Person of Integrity and Judgment should be employ'd to get them from such Vineyards, where no other Sorts of Grapes are cultivated; which is very rare to find, unless in some particular Vineyards of the Citizens, who are very exact to keep up the Reputation of their Wines; nothing being more common than for the *Vignerons* to plant three or four Sorts of Grapes in the same Vineyard, and at the time of Vintage to mix them all together; which renders their Wines less delicate than in such Places where they have only this one true Sort of Grape. And here I would caution every one against mixing the Juice of more Grapes than one Sort, which will cause it to ferment at different times, and in different manners.

The Cuttings being thus provided (for I would always prefer these to Layers, or rooted Plants, for the Reasons given at the Beginning of the Article *Vitis*), about the Beginning of *April* is the best Season for Planting; when it will be proper to put the Lower-ends of the Cuttings in Water about three Inches, setting them upright for six or eight Hours before they are used; then at the Centre of every cross Mark already made by a Line, to the Distance the Vines are design'd, should be an Hole made with a Spade, or other Instrument, about a Foot deep, into each of which should be put one strong

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Cutting, placing it a little sloping ; then the Hole should be fill'd up with Earth, pressing it gently with the Feet to the Cutting, and raising a little Hill to each about three Inches, so as just to cover the uppermost Eye or Bud ; which will prevent the Wind and Sun from drying any Part of the Cuttings, and this upper Eye only will shoot ; the under ones most of them will push out Roots ; so that this Shoot will be very strong and vigorous.

After they are thus planted, they will require no other Care until they shoot, except to keep the Ground clear from Weeds, which should be constantly observ'd ; but as the Distance between the Rows of Vines is pretty great, so the Ground between them may be sown or planted with any kind of esculent Plants, which do not grow tall, provided there is proper Distance left from the Vines, and Care taken, that the Vines are not injured by the Crops, or in the gathering, and carrying of them off the Ground ; and this Husbandry may be continued three or four Years, till the Vines come to Bearing ; after which time there should be no Sort of Crop put between them in Summer ; because the cleaner the Ground is kept between the Vines, from Weeds or Plants, the more Heat will be reflected to the Grapes ; but after the Grapes are gather'd, there may be a Crop of Caulworts for Spring-use, planted between the Rows of Vines ; and the cultivating of these will be of Use to the Vines, by stirring of the Ground : but as to Watering, or any other Trouble, there will be no Occasion for it, notwithstanding what some People have directed ; for in *England* there is no Danger of their mis-carrying by Drought. When the Cuttings begin to shoot, there should

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be a small Stick of about three Feet long stuck down by each, to which the Shoots should be fasten'd, to prevent their breaking, or lying upon the Ground ; so that as the Shoots advance, the Fastening should be renew'd ; and all small lateral Shoots (if there are any such produc'd) should be constantly displac'd, and the Ground between the Vines always kept clean. This is the whole Management which is requir'd the first Summer.

But at *Michaelmas*, when the Vines have done shooting, they should be pruned ; for if they are left unpruned till Spring, their Shoots, being tender (especially towards their upper Parts), will be in Danger of suffering, if the Winter should prove severe.

This Pruning is only to cut down all the Shoots to two Eyes ; and if, after this is done, the Earth be drawn up in an Hill about each Plant, it will still be a greater Defence against Frost.

At the Beginning of *March* the Ground between the Vines should be well dug, to loosen it, and render it clean ; but you should be careful not to dig deep close to the Vines, lest thereby their Roots should be cut or bruised ; and at the same time the Earth should be again laid up in an Hill about each Plant ; but there must be care taken not to bury the two young Eyes of the former Year's Shoot, which were left to produce new Wood.

At the Beginning of *May*, when the Vines have made Shoots, there should be some Stakes fix'd down to the Side of each Plant, which must be somewhat taller and stronger than those of the former Year ; to these the two Shoots (if so many are produc'd) should be fasten'd ; and all the small trailing or lateral Shoots should be

be constantly displac'd, that the other Shoots may be stronger; and the Ground should also be kept very clear from Weeds, as before.

At *Michaelmas* these Vines should be pruned again, in the following manner: those of them which have produc'd two strong Shoots of equal Vigour, must be cut down to three Eyes each; but in such as have one strong Shoot, and a weak one, the strong one must be shorten'd to three Eyes, and the weak one to two; and such Vines as have produc'd but one strong Shoot, should be shorten'd down to two Eyes also, in order to obtain more Wood against the succeeding Year.

In the Spring, about the Beginning of *March*, the Ground between the Vines should be again dug, as before; and two Stakes should be plac'd down by the Side of all such Vines as have two Shoots, at such Distance on each Side of the Plant as the Shoots will admit to be fasten'd thereto; and the Shoots should be drawn out on each Side to the Stakes, so as to make an Angle of about forty-five Degrees with the Stem; but by no means should they be bent down horizontally, as is by some practis'd; for the Branches, lying too near the Earth, are generally injured by the Damps which arise from thence, but especially when they have Fruit; which is never so well tasted, nor so early ripe upon those Branches, as when they are a little more elevated.

In *May*, when the Vines begin to shoot, they must be carefully look'd over, and all the weak dangling Shoots should be rubb'd off as they are produc'd; and those Shoots which are produc'd from strong Eyes, should be fasten'd to the Stakes to prevent their being broken off by the Wind. This Management should

be repeated at least every three Weeks, from the Beginning of *May* to the End of *July*; by which means, the Shoots which are trained up for the succeeding Year will not only be stronger, but also better ripen'd, and prepared for Bearing, because they will have the Advantage of Sun and Air, which is absolutely necessary to prepare their Juices; whereas if they are crouded by a Number of small dangling weak Branches, they will shade and exclude the Rays of the Sun from the other Shoots; and so, by detaining the Moisture a longer time amongst the Branches, occasion the Vessels of the young Wood to be of a larger Dimension; and hereby the crude Juice finds an easy Passage thro' them; so that the Shoots in Autumn seem to be mostly Pith, and are of a greenish immature Nature; and where-ever this is observ'd, it is a sure Sign of a bad Quality in the Vines.

The Soil also should be constantly kept clean; because, if there are any Vegetables (either from Weeds, or Plants of other Kinds) growing between the Vines, it will detain the Dews longer, and, by their Perspiration, occasion a greater Moisture, than would be, if the Ground were intirely clear; so that those who plant other Things between their Rows of Vines, are guilty of a great Error.

At *Michaelmas* the Vines should be pruned, which Season I approve of rather than the Spring (for Reasons given already); and this being the third Year from planting, the Vines will begin to produce Fruit; therefore they must be pruned accordingly. Now, suppose the two Shoots of the former Year, which were shorten'd to three Eyes, have each of them produc'd two strong Branches the Summer past, then the

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uppermost of these Shoots upon each Branch should be shorten'd down to three good Eyes (never including the lower Eye, which is situate just above the former Year's Wood; which seldom produces any thing, except a weak dangling Shoot); and the lower Shoots should be shorten'd down to two good Eyes each; these being design'd to produce vigorous Shoots for the succeeding Year; and the former are design'd to bear Fruit: but where the Vines are weak, and have not produc'd more than two or three Shoots the last Season, there should be but one of them left with three Eyes for Bearing; the rest must be shorten'd down to two, or, if weak, to one good Eye, in order to obtain strong Shoots the following Summer; for there is nothing more injurious to Vines, than the leaving too much Wood upon them, especially while they are young, or the overbearing them; which will weaken them so much, as not to be recover'd again to a good State in several Years; though they should be manag'd with all possible Skill.

In *March* the Ground between the Vines should be well dug, observing not to injure their Roots by digging too deep near them; but where there are small horizontal Roots produc'd on or near the Surface of the Ground, they should be pruned off close to the Place where they were produc'd; these being what the *Vignerons* call Day-roots, and are by no means necessary to be left on: and after having dug the Ground, the Stakes should be plac'd down in the following manner: on each Side of the Vine should be a Stake put in at about sixteen Inches from the Root, to which the two Branches, which were pruned to three Eyes, each for Bearing, should be fasten'd (observing, as was before

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directed, not to draw them down too horizontally); then another taller Stake should be placed down near the Foot of the Vine, to which the two Shoots, which were pruned down to two Eyes, should be fasten'd, provided they are long enough for that Purpose; but if not, when their Eyes begin to shoot, these must be trained upright to the Stakes, to prevent their trailing on the Ground, or being broken by the Wind.

In *May* the Vines should be carefully look'd over again, at which time all weak lateral Branches should be rubb'd off as they are produc'd; and those Shoots which shew Fruit, must be fasten'd with Bafs to the Stakes, to prevent their being broken, until they are extended to three Joints beyond the Fruit, where they should be stopp'd: but the Shoots which are design'd for bearing the following Season, should be kept trained upright to the middle Stake; by which Method the Fruit-branches will not shade these middle Shoots, nor will the middle Shoots shade the Fruit; so that each will enjoy the Benefit of Sun and Air.

This Method should be repeated every Fortnight or three Weeks, from the Beginning of *May* to the Middle or Latter-end of *July*; which will always keep the Shoots in their right Position, whereby their Leaves will not be inverted, which greatly retards the Growth of the Fruit; and, by keeping the Vines constantly clear from horizontal Shoots, the Fruit will not be crouded with Leaves, and shaded, but will have constantly the Advantage of the Sun and Air equally, which is of great Consequence; for where the Fruit is cover'd with these dangling Shoots in the Spring, and are afterward expos'd to the Air, either by divesting these of their Leaves, or else dis-

displacing their Branches intirely, as is often practised, the Fruit will become hard, and remain at a perfect Stand for three Weeks, and sometimes will never advance afterward, as I have several times observ'd; therefore there cannot be too much Care taken to keep them constantly in a kindly State of Growth, as the *Vignerons* abroad well know; tho' in *England* it is little regarded by the Generality of Gardeners, who, when their Grapes suffer by this Neglect, immediately complain of the Climate, or the Untowardness of the Season, which is too often a Cover for Neglects of this Nature. And here I can't help taking notice of the absurd Practice of those who pull off their Leaves from their Vines, which are placed near the Fruit, in order to let in the Rays of the Sun to ripen them; not considering how much they expose their Fruit to the cold Dews, which fall plentifully in Autumn, which, being imbib'd by the Fruit, greatly retard them: besides, no Fruit will ripen so well when intirely expos'd to the Sun, as when they are gently screen'd with Leaves; and by the pulling off these Leaves, which are absolutely necessary to prepare the Juices before they enter the Fruit, the gross Parts of which are perspired away by the Leaves, the Fruit must either be depriv'd of Nourishment, or else some of the gross Particles will enter with the more refined Parts of the Juice, and thereby render the Fruit worse than it would otherwise be, were the Leaves permitted to remain upon the Branches: for if the weak dangling Shoots are constantly displac'd as they are produc'd, the Fruit will not be too much shaded by the Leaves which are upon the bearing Branches.

When the Fruit is ripe, if the Stalks of the Bunches are cut half thro' a Fortnight before they are gather'd, it will cause the Juice to be much better, because there will not be near so great a Quantity of Nourishment enter the Fruit; whereby the watry Particles will have time to evaporate, and the Juice will be better digested. This is practised by some of the most curious *Vignerons* in the South of *France*, where they make excellent Wine. But if, after the Fruit be cut, it is hung up in a dry Room upon Strings, so as not to touch each other, for a Month before they are pressed, it will also add greatly to the Strength of the Wine; because in that time a great Quantity of the watry Parts of the Juice will evaporate. This is a constant Practice with some Persons, who inhabit in the *Tirolese*, on the Borders of *Italy*, where is made a most delicious rich Wine, as hath been attested by Dr. *Burnet* in his Travels; and I have heard the same from several Gentlemen, who have travell'd that Road since.

But with all the Care that can possibly be taken, either in the Culture of the Vines, or in making the Wine, it will not be near so good while the Vineyard is young, as it will be after it has been planted ten or twelve Years; and it will be constantly mending, until it is fifty Years old, as is attested by several curious Persons abroad, as also by the most skilful Wine-coopers at home, who can tell the Produce of a young Vineyard from that of an old one, after it is brought to *England*, by the Colour of the Wine. This Difference is very easily accounted for, from the different Structure of the Vessels of the Plants: those of the young Vines, being larger, and of

a looser Texture, easily admit a larger Quantity of gross Nourishment to pass thro' them; whereas those of old Vines, which are more woody, are more closely constricted, and thereby the Juice is better strain'd in passing thro' them, which must consequently render it much better; tho' the Grapes from a young Vineyard will be larger, and afford a greater Quantity of Juice; so that People should not be discouraged, if their Wines at first are not so good as they would wish; since afterward, when the Vineyard is a few Years older, the Wine may answer their Expectation. As to the fermenting and managing the Wine, that is treated of particularly under the Article of *Wines*, to which the Reader is desired to turn.

The Vineyard, being now arriv'd to a bearing State, should be treated after the following manner: First, in the Pruning, there should never be too many Branches left upon a Root, nor those too long: for altho', by doing of this, there may be a greater Quantity of Fruit produc'd, yet the Juice of these will never be so good as when there is a moderate Quantity of Fruit, which will be better nourish'd, and the Roots of the Plants not so much weaken'd; which is found to be of so bad Consequence to Vineyards, that when Gentlemen abroad let out Vineyards to *Vignerons*, there is always a Clause inserted in their Leases to direct how many Shoots shall be left upon each Vine, and the Number of Eyes to which the Branches must be shorten'd; because were not the *Vignerons* thus tied down, they would overbear the Vines; so that in a few Years they would exhaust their Roots, and render them so weak, as not to be recover'd again in several Years; and their Wine would be so bad, as

to bring a Disreputation on the Vineyard, to the great Loss of the Proprietor.

The Number of Branches, which the *Italians* generally agree to leave upon a strong Vine, are four; two of the strongest have four Eyes, and the two weaker are shorten'd down to two Eyes each; which is very different from the common Practice in *England*, where it is usual to see six or eight Branches left upon each Root, and those, perhaps, left with six or eight Eyes to each; so that if these are fruitful, one Root must produce near four times the Number of Bunches which the *Italians* do ever permit; and so consequently the Fruit will not be so well nourish'd, and the Roots will also be greatly weaken'd; as is the Case of all Sorts of Fruit-trees, when a greater Number of Fruit is left on, than the Trees can nourish.

The next thing is, constantly to keep the Ground perfectly clean between the Vines, never permitting any sort of Plants or Weeds to grow there: the Ground should also be carefully dug every Spring, and every third Year should have some Manure, which should be of different Sorts, according to the Nature of the Ground, or which can be most conveniently procur'd.

If the Land is stiff, and inclinable to bind on the Surface, then Sea-sand, or Sea-coal Ashes, are either of them very good Manure for it; but if the Ground be loose and dry, then a little Lime, mix'd with Dung, is the best Manure for it. This must be spread thin upon the Surface of the Ground before it is dug; and in digging should be buried equally in every Part of the Vineyard. These are much preferable to that of all Dung for Vines; so that it will be worth the Expence to procure either
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of them : and as they require manuring but every third Year, where the Vineyard is large, it may be divided into three equal Parts ; each of which may be manured in its Turn, whereby the Expence will be but little every Year ; whereas when the Whole is manur'd together, it will add to the Expence ; and in many Places there can't be a sufficient Quantity procur'd to manure a large Vineyard in one Year.

The Digging and Manuring should always be perform'd about the Beginning of *March* ; at which time all the superficial or Day-roots, as they are call'd, must be cut off ; but the larger Roots must not be injur'd by the Spade, &c. therefore the Ground close to the Stem of the Vines must not be dug up deep. After this done, the Stakes should be placed down, one on each Side the Vines, at about sixteen Inches from their Stems ; to which the longest bearing Branches should be fasten'd, and one Stake close to the Stem, to which the two shorter Branches should be train'd upright, to furnish Wood for the succeeding Year.

In the Summer they must be carefully look'd over, as before, rubbing off all weak dangling Shoots, and training the good ones to the Stakes regularly, as they are produc'd ; and those of them which have Fruit, should be stopp'd in *May*, about three Joints beyond the Bunches ; but the upright Shoots, which are design'd for bearing the following Year, must not be stopp'd till the Beginning of *July*, when they may be left about five Feet long ; for if they are stopp'd sooner in the Year, it will cause them to shoot out many dangling Branches from the Sides of the Eyes ; which will not only occasion more Trouble to displace them, but also will be injurious to the Eyes or Buds.

N. B. *All this Summer Dressing should be performed with the Thumb and Finger, and not with Knives ; because the Wounds made by Instruments in Summer do not heal so soon as when stopp'd by gently nipping the leading Bud ; which if done before the Shoot is become woody, it may be effected with great Ease, being very tender while young.*

When a Vineyard is thus carefully dressed, it will afford as much Pleasure in viewing it as any Plantation of Trees or Shrubs whatever, the Rows being regular ; and if the Stakes are exactly plac'd, and the upright Shoots stopp'd to an equal Height, there is nothing in Nature which will make a more beautiful Appearance : and during the Season that the Vines are in Flower, they emit a most grateful Scent, especially in the Morning and Evening ; and when the Grapes begin to ripen, there will be a fresh Pleasure arising in viewing of them.

But as the Beauty of Vineyards arises from the regular Disposition of the Branches of the Vines, great Care should be taken, in their Management, to train them regularly, and to provide every Year for new Wood to bear the succeeding Year ; because the Wood which has produced Fruit, is commonly cut quite away, after the Fruit is gather'd, or at least is shorten'd down to two Eyes, to force out Shoots for the next Year, where there is not a sufficient Number of Branches upon the Vine, of those trained upright ; so that in Summer, when the Vines are in Perfection, there should be six upright Shoots train'd for the next Year's Wood, and three or four bearing Branches, with Fruit on them ; more than these ought never to be left upon one Vine, for the Reasons before given.

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N. B. The *Auvernat*, or true *Burgundy* Grape, is valued in *France* before any other Sort; because the Fruit never grows very close upon the Bunches, therefore are more equally ripen'd; for which Reason it should also be preferr'd in *England*; though, in general, those Sorts are most esteem'd with us that have always close Bunches, which is certainly wrong; for it may be observ'd, that the Grapes upon such Bunches are commonly ripe on one Side, and green on the other; which is a bad Quality for such as are press'd to make Wine.

I shall now subjoin a few Sorts of Vines, which are preserv'd in some curious Gardens, more for the sake of Variety, than the Value of their Fruit: these are,

1. *VITIS sylvestris Virginiana. Par. Theat.* The wild *Virginian* Grape.

2. *VITIS vulpina dicta, Virginiana alba. Pluk. Alm.* The Fox-grape, *vulgo*.

3. *VITIS alba dulcis, foliis variegatis.* The blotch-leav'd Vine.

4. *VITIS alba dulcis, limbis foliorum argentatis.* The striped-leav'd Vine.

5. *VITIS quinquefolia Canadensis scandens. Tourn.* The *Virginian* Vine, or common Creeper.

The first and second Sorts grow in great Plenty in the Woods of *America*, where, I have been inform'd, are many other Sorts, some of which produce Fruit very little inferior to most of the fine Sorts which are cultivated in *Europe*; notwithstanding which, it is generally thought impossible to make Wine in *America*; but this, I dare say, must proceed from a want of Skill, rather than any bad Quality in the Soil or Climate: so that instead of planting Vineyards on their loose rich Lands (as hath been generally practis'd by

the Inhabitants of those Countries), if they would plant them upon rising Ground, where the Bottom was rocky or hard near the Surface, I dare say they would have very good Success; for the great Fault, complain'd of in those Countries, is, that the Grapes generally burst before they are fully ripe; which must certainly be occasion'd by their having too much Nourishment; therefore, when they are planted on a poorer Soil, this will be, in part, remedied. Another Cause of this may proceed from the Moisture of the Air (occasioned by the Perspiration of Trees, &c.), which, being imbibed by the Fruit, may break their Skins. This, indeed, can't be prevented until the Country is better clear'd of the Timber; but, however, this should caution People not to plant Vines in such Places where there are great Quantities of Woods, because of this Effect which it hath on the Grapes. But to return:

These two Sorts of Vines are preserv'd in the Gardens of those who are curious in Botany; but I have not seen either of them produce Fruit in this Country. These may be propagated by Layers, which will take Root in one Year, and may be taken off, and transplanted in the Spring where they are to remain, which should be against a warm Wall; because if they are exposed to much Cold in Winter, they are often destroy'd, especially while they are young.

Their Pruning and Management is the same with any other Sorts of Grapes; only they should have fewer Shoots, and those shorten'd down very low: otherwise they will make very weak Shoots, and never arrive to any considerable Strength; so will not be capable of producing Fruit.

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The two Sorts with striped Leaves are also preserved by those who are curious in collecting a Variety of Plants. These may be propagated as the other Kinds of Grapes; but are tender, and must have a warm Situation, otherwise they will not thrive; nor do the Cuttings of these take Root so readily as those whose Leaves are plain; but as there is no very great Beauty in these Plants, they are scarcely worth cultivating, unless for Variety.

The fifth Sort was originally brought from *America*; but from its Hardiness, and being easy to propagate, is become as common as if it were a Native of this Country.

This Plant is chiefly planted in small Gardens near *London*, where it endures the Smoke better than most other Plants; and, being a rampant Grower, is planted against high Walls and Buildings, which it will cover sooner than any other Sort of Plant; and in Summer will look green, which is what the Inhabitants of *London* are greatly pleas'd with. The Branches of this Plant will sometimes shoot twenty or thirty Feet long in one Summer, and send forth Roots from their Joints, whereby they fasten themselves to the Building where they are plac'd: so that they do not require much Trouble to support them.

The only Culture they require, is to cut out all the small weak Shoots in *March*, and shorten the strong ones to about ten Feet long; which will strengthen them against the succeeding Summer, and cause them to shoot vigorously.

This Plant may be propagated by Cuttings, which should be planted in the Spring, upon a shady Border, where they will take Root freely; and, if water'd in dry Weather, will make a great Progress the succeed-

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ing Summer, and the Spring after may be transplanted where they are to remain, which may be in almost any Soil or Situation; for they are very hardy Plants.

VITIS IDÆA. *Vide Vaccinium.*

VITIS SYLVESTRIS. *Vide Clematis.*

ULEX, Furze, Gorz, or Whins.

The Characters are;

It hath a butterfly (or pea-bloom) Flower, consisting of the Standard, the Keel, and the Wings, included in a permanent Empalement, which has two oval concave Leaves: the Standard is large, erect, and vertically heart-shaped: the Wings are oblong, blunt, and shorter than the Standard: the Keel is divided into two Parts, which are obtuse, and inclose the ten Stamina with the Pointal; nine of the Stamina being joined in one Body, the other standing single: the Pointal afterward becomes an oblong swelling Pod, inclosing several kidney-shap'd Seeds.

The Species are;

1. ULEX folio sub singulis spinis subulato plano acuto. Hort. Cliff. The common Furze, Whins, or Gorz.

2. ULEX foliis obtusis solitariis, spinis simplicibus. Flor. Leyd. African Furze, or Whins, with simple blunt Leaves.

This Genus of Plants has been titled, by the antient Botanists, *Genista spinosa*, and *Genista spartium*; but these being, compound Names, have been rejected; and as there is another Genus of Plants under the Title of *Genista*, Dr. *Linnaeus* has applied this Title of *Ulex*, which is a Name used by *Pliny*, to this Genus.

There are two or three Varieties of the common Furze or Gorz, which are frequently met with in the Com-

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mons and Heaths, in most Parts of *England*; but as they are not specifically different, they are not worthy to be enumerated here, especially as they are Plants which are not much cultivated.

These Plants propagate themselves very plentifully by Seeds; so that when they are establish'd in a Spot of Ground, they soon spread over the Place: for as the Seeds ripen, the Pods open with the Warmth of the Sun, and the Seeds are cast out with an Elasticity, to a great Distance all round, and these soon vegetate; whereby the Ground is filled with young Plants, which are not easily destroyed, when they are well rooted in the Ground.

Some Years ago the Seeds of this Plant were sown to form Hedges about Fields; where, if the Soil was light, the Plants soon became strong enough for a Fence against Cattle: but as these Hedges became naked at the Bottom, after a few Years, and some of the Plants frequently fail'd, so that there became Gaps in the Hedges; therefore the Culture of these Hedges has been, of late Years, little practis'd. But there are some Persons who have sown the Seeds of this Plant upon very poor hungry gravel or sandy Land, which has produc'd more Profit than they could make of the Ground by any other Crop; especially in such Places where Fuel of all Sorts is dear: for this Furze is frequently used for heating Ovens, burning of Lime and Bricks, as also for the drying of Malt: and in some Places, where there has been a Scarcity of Fuel, I have known poor Lands, which would not have lett for five Shillings *per Acre*, which have been sown with Furze, produce one Pound *per Acre per Ann.* so that there has been a considerable Improvement made

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by this Plant. But this is not worth practising in such Countries where Fuel of any Kind is cheap, or upon such Land as will produce good Grass or Corn; therefore it is only mention'd here, to shew that poor Lands may be so manag'd, as to bring an annual Profit to their Proprietors.

The second Sort is a Native of the Country near the *Cape of Good Hope*, where it usually grows to the Height of five or six Feet; but in *Europe*, where it is preserv'd as a Curiosity in some Gardens, it seldom is more than half that Height. It is too tender to live in the open Air, through the Winter, in *England*; therefore it is preserv'd in Green-houses, with the hardier Sort of Exotic Plants, which do not require any artificial Heat to preserve them.

It is propagated by Layers, which are generally two Years before they have sufficient Root to transplant; so that these Plants being somewhat difficult to propagate in this Climate, this has render'd it less common in the *English* Gardens; because it never produces any Seeds here, and but rarely any Flowers in *England*: but as it is an Ever-green, it is admitted into the Gardens of those who are curious in Botany, for the sake of Variety.

ULMARIA, Meadow-sweet, or Queen of the Meadow.

The Characters are;

It hath a Flower compos'd of several Leaves, which are placed in a circular Order, and expand in form of a Rose: out of whose Empalement rises the Pointal, which afterward becomes a Fruit composed of many little membranaceous crooked Husks, gather'd into an Head, each of which generally contains one Seed.

The Species are;

1. ULMARIA. *Clus. Hist.* Meadow-sweet.

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2. *ULMARIA flore pleno. Jussieu.* Meadow-sweet with a double Flower.

3. *ULMARIA foliis ex luteo variegatis.* Meadow-sweet with Leaves variegated with yellow.

The first Sort grows wild in moist Meadows in most Parts of *England*: and flowers the Beginning of *June*, when it makes a fine Appearance amongst the Grass. It also grows plentifully on the Sides of Ditches and Rivers, where, as it is not often mowed down, it continues much longer in Beauty, and the Stalks rise to a greater Height. The Flowers which are produced on the Tops of the Stalks, in form of an Umbel, are white, and smell very sweet. These, as also the Leaves and Roots, are used in Medicine. This Plant is esteemed to be cooling, drying, and binding; and also is sudorific and alexipharmic. The Preparations of this Plant are, the distilled Water of the Flowers and Leaves, and the Extract; which by some is much commended. The Flowers give an agreeable Flavour to Wine, and are sometimes used to add a Flavour to strong *Spanish* Wines, like that of the *Malvatic* Wine, which is made in the Island of *Candy*. These Flowers are proper to place in Basins to adorn Halls and Chambers; because they are of an agreeable Sweetness, which doth not offend the Head.

This Plant is seldom admitted into Gardens, being so commonly found wild in the Fields; but in low moist Places, in large Gardens, if some of these Plants were placed, they would afford an agreeable Variety; and in such Places few other Plants, which are more valuable, will thrive.

The second Sort deserves a Place in every good Garden, for the sake of its fine double Flowers, which

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continue in Beauty a long time. This doth not differ from the common Sort in any thing, except that the Flowers are very double and large; so that when it is planted on a moist Soil, or is duly water'd in dry Weather, it makes a fine Appearance for at least a Month, or, in a cool Season, near six Weeks; and as the Flowers have an agreeable Sweetness, so they are a fine Ornament in Basins to place in Rooms.

These Plants are propagated by parting of their Roots, which should be done in Autumn, that they may be well rooted before the dry Weather comes on in the Spring; otherwise they will not flower very strong the following Summer. These Roots need not be parted oftener than every other Year, and then they should not be parted into small Heads; for as the Beauty of this Plant is to have many Stems of Flowers, so, when the Roots are divided too much, there will be very few Stems produced; and, consequently, the Plants will make but a mean Appearance.

Where these Plants are placed in in moist shady Borders, intermixed with other flowering Plants, they should be allowed good room; for as their Roots spread pretty far in the Ground, so, when they have but little room, they will starve in Summer, unless they are plentifully watered, and the Soil be very good in which they are planted; for wherever their Roots intermix with those of other Plants, there will be a great Struggle for the Mastery, and thereby both Sorts will be render'd weak. So that these should be planted two Feet asunder, and as much from any other Plants; and this will be room enough to dig the Ground between the Plants, which should always be carefully done those Years when the Plants are not remov'd; which will encourage

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encourage the Roots, and cause them to flower very strong.

The Sort with strip'd Leaves is also preserved in some Gardens for the sake of Variety. This may be propagated by parting of the Roots in the same manner as the former Sort; but this must not have a rich Soil; for that will cause it to run plain.

ULMUS, The Elm-tree.

The Characters are;

The Flower consists of one Leaf, which is shaped like a Bell, having many Stamina (or Threads) in the Centre: from the Bottom arises the Pointal, which afterward becomes a membranaceous or leafy Fruit, almost heart-shaped; in the Middle of which is placed a pear-shaped Seed-vessel, containing one Seed, for the most part of the same Shape, having a Border or Wing round it.

The Species are;

1. ULMUS *vulgatissima*, folio lato scabro. Ger. Emac. The common rough-leav'd Elm.

2. ULMUS *folio latissimo scabro*. Ger. Emac. The Witch-hazel, or broad-leav'd Elm; by some unskilful Persons call'd the *British* Elm.

3. ULMUS *minor*, folio angusto scabro. Ger. Emac. The small-leav'd or *English* Elm.

4. ULMUS *folio glabro*. Ger. Emac. The smooth-leav'd or Witch-elm.

5. ULMUS *major Hollandica*, angustis & magis acuminatis samarris, folio latissimo scabro. Pluk. Alm. The *Dutch* Elm.

6. ULMUS *minor*, folio angusto scabro, elegantissime variegato. The *English* Elm, with beautiful striped Leaves.

7. ULMUS *folio glabro*, eleganter variegato. The Witch-elm, with striped Leaves.

8. ULMUS *minor*, foliis flavescens. The yellow-leav'd Elm.

9. ULMUS *major Hollandica*, an-

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gustis & magis acuminatis samarris, folio latissimo scabro, eleganter variegato. The *Dutch* Elm, with striped Leaves.

10. ULMUS *minor*, folio angusto glabro. The smooth narrow-leav'd Elm, by some call'd the Upright narrow-leav'd Elm,

11. ULMUS *folio lato scabro*, cortice cinereo glabro. The White-bark'd Elm, by some call'd the smooth Witch-elm, and by others, the *Irish* Elm.

12. ULMUS *folio lato scabro*, angustis samarris. The *French* Elm.

The four first-mention'd Sorts are very common in divers Parts of *England*, though it is generally believ'd neither of them were originally Natives of this Country; but, however that be, they have propagated themselves by Seeds and Suckers, which have risen from the Roots of old Trees, in such Plenty, as hardly to be rooted out, where they have had long Possession, especially in Hedges-rows, where there is Harbour for their Roots, which, when left undisturb'd, will send forth a fresh Parcel of young Plants annually; from whence the People who supply the Nursery-men gather them.

The fifth Sort is equally hardy, and almost as common in *England*, as either of the former. This is pretty quick of Growth while young, and will outstrip the common *English* Elm for a few Years; but after ten or twelve Years Growth, the *English* Elm will get the better every Year; and the Timber thereof being much preferable to that of the *Dutch* Elm, renders it more valuable for Planting.

This Sort of Elm was introduc'd about the time of the Revolution, and was a fashionable Tree at that time for Hedges; but as the Bark of the Shoots is very rough and un-

ightly,

whole Tree making a ragged Appearance, the Leaves coming out late in the Spring, and falling early in the Autumn, renders it not worthy of a Place : so should be rooted out of every Garden.

The Sorts with striped Leaves are preserv'd by those who are curious in collecting variegated Plants ; but they are not worth propagating, unless for the sake of Variety ; being of slower Growth, and, in most Peoples Judgments, less beautiful, than the plain Sorts.

There are some other Varieties of the Elm, which differ so little from the Sorts here enumerated, as scarcely to be distinguish'd ; so it will be needless to mention them, because they are not so proper to make Plantations, as the other more common Sorts.

The tenth Sort is very common in some Parts of *Hertfordshire*, and in *Cambridgeshire*, where there is scarce any other Sort of Elm to be seen. This makes a very handsome upright Tree, and retains its Leaves as late in the Autumn as the common small-leav'd Elm, which is call'd the *English Elm* by the Nursery-men near *London* ; but it doth not come out so early in the Spring.

The eleventh Sort is by some Persons preferr'd to most others for the free Growth, and its retaining the Leaves longer than any other Sort. The Bark of this Tree is very smooth, and of an Ash-colour ; the Leaves are of a lively green Colour ; and the Growth of the Tree is very regular and upright.

The twelfth Sort is not so much esteem'd as either of the former ; but, being a very hardy Kind, it will grow in such Soils as the former will not ; for which some Persons cultivate it ; tho' I think neither this, nor the *Dutch Elm*, worth planting.

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These Trees may be either propagated by Layers or Suckers taken from the Roots of the old Trees ; the latter of which is greatly practised in many Places : but as these are often cut up with indifferent Roots, they very often miscarry, and render the Success doubtful ; whereas those which are propagated by Layers, are in no Hazard, and always make better Roots, and come on faster, than the other, nor do they send out Suckers from their Roots in such Plenty ; for which Reason this Method should be more universally practis'd. And since a small Compass of Ground fill'd with Stools of these Plants will be sufficient to furnish a Nursery of a considerable Extent, annually, with Layers to be transplanted, it is richly worth every Person's while, who would cultivate these Trees, to allot a Piece of Ground for this Purpose.

The best Soil for such a Nursery is a fresh Hazel-loam, neither too light and dry, nor over-moist and heavy ; this Ground should be well trench'd, and a little rotten Dung buried therein ; and in doing of this, great Care should be taken to pick out all Roots of pernicious Weeds ; which, if left in the Ground, would be very injurious to the Layers, and can't afterwards be so easily rooted out : then having laid the Ground level, the Plants must be planted at about eight Feet asunder each Way. The best Season for this Work is in Autumn, as soon as the Leaves begin to decay, that they may take Root before the dry Weather in the Spring comes on, whereby a great Expence of watering them will be saved : for if they are well settled in the Ground before the dry Weather, they will require little more than to mulch their Roots, to keep the Earth from drying.

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These Plants should be permitted to grow rude two Years; during which time the Ground between should be carefully clean'd and dug every Spring: by this time they will be strongly rooted, and have made pretty strong Shoots, so that they may be laid in the Ground. The manner of performing this being already describ'd in the Article of *Layrs*, I shall forbear repeating it in this Place.

When these Layers are well rooted, they should be taken off, and transplanted out into a Nursery: which should be upon a good Soil, and well prepar'd (as before for the Stools). The Plants should be planted in Rows four Feet asunder, and two Feet Distance Plant from Plant in the Rows. This should be done in Autumn, as soon as the Leaves begin to decay; and if there is some Mulch laid upon the Surface of the Ground about their Roots, it will preserve them from being hurt by Frost in Winter, and from drying Winds in Spring, and thereby secure them from all Hazard.

The following Summer the Ground between them should be constantly kept clean from Weeds, and in Autumn they should be pruned up, cutting off all strong lateral Shoots, which, if left on, would impede their upright Growth; but there must be some of the smaller Shoots left on to detain the Sap, in order to augment the Stems of the Trees: for where they are pruned up too naked, they are apt to grow up too slender to support themselves; so that their Heads will recline to the Ground, and cause their Stems to grow crooked.

In this Nursery they may remain five or six Years, observing constantly to dig the Ground between them

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every Spring, and to trim them as before directed; which will promote their Growth, and render them strong enough to transplant out where they are to remain, in the time before-mention'd.

These Trees are very proper to plant in Hedge-rows, upon the Borders of Fields, where they will thrive much better than when planted in a Wood, or close Plantation; and their Shade will not be very injurious to whatever grows under them; but when these Trees are transplanted out upon Banks after this manner, the Banks should be well wrought and clear'd from all other Roots, otherwise the Plants, being taken from a better Soil, will not make much Progress in these Places. About *Michaelmas* will be a good time for this Work, for the Reasons before assign'd; but when they are planted, there should be some Stakes fix'd in by them, to which they should be fasten'd, to prevent their being displac'd by the Winds; and Part of their Heads should be taken off before they are planted, which will also be of Use in preventing their being easily overturn'd by Winds; but by no means should their leading Shoot be stopp'd, nor their Branches too closely cut off; for if there are not some Shoots left on to draw and attract the Sap, they will be in Danger of miscarrying.

These Trees are also proper to plant at a Distance from a Garden or Building, to break the Violence of Winds; for which Purpose there is not any Tree more useful; for they may be train'd up in form of an Hedge, keeping them cut every Year; which will cause them to grow very close and handsome, to the Height of forty or fifty Feet, and be a great Protection against the

the Fury of Winds : but they should not be planted too near a Garden, where Fruit-trees, or other Plants, are placed ; because the Roots of the Elms run superficially near the Top of the Ground to a great Distance, and will intermix with the Roots of the other Trees, and deprive them of Nourishment. Nor should they be planted near Gravel or Grass-walks, which are design'd to be well kept ; because the Roots will run into them, and send forth Suckers in great Plenty ; which will deface the Walks, and render them unsightly.

But for large Gardens, where Shade is requir'd, there is scarce any Tree so proper for that Purpose, being easy to remove when grown to a considerable Size ; so that a Person who is willing to have his Plantations for Shade in a short time, may procure Trees of one Foot Circumference in their Trunk, which will be in no Danger of succeeding, provided they are remov'd with Care. And these will take Root, and grow again, almost as well as young Plants, which is what few other Sorts of Trees will do ; but then they should be such Trees as have been thus regularly train'd up in a Nursery, and have good Roots, and not such as are taken out of Hedge-rows (as is by some practis'd), which seldom rise with any tolerable Roots, and consequently often miscarry ; and this has been the Occasion of so many Plantations of these Trees failing ; for although some of them may live a few Years, yet few of them are of long Duration, and they rarely increase much in their Stems, but frequently grow hollow, their Heart decaying first ; so that they are supported only by their Bark or Shell, for a few Years, and the first severe Winter, or very

dry Summer, they are generally destroyed.

But although I have said, that Elms which are train'd up in a Nursery may be remov'd with Safety, at a larger Size than most other Trees, yet I would not have it understood, that by this I would recommend the planting of them when large ; for if People would have a little Patience when they plant, and never plant any of these Trees which are more than four or five Inches in Girth of their Stems, they will in a few Years become better Trees than any of those which are transplanted of a much larger Growth, and they will always grow to a much larger Size : besides, they are much more easily remov'd, and do not require to be so strongly supported ; nor is there much Danger of the young Trees miscarrying : therefore it is much more eligible to make choice of young thriving Trees (but not out of a better Soil than that where they are to be planted), and never to plant any large Trees, unless where a small Number may be wanted for an immediate Shade ; and in such Cases, it is always proper to plant some young Trees amongst the large ones, to succeed them when they fail.

In Planting of these Trees, great Care should be taken not to bury their Roots too deep ; which is very injurious to them, especially if they are planted on a moist Loam or Clay ; in which Case, if the Clay is near the Surface, it will be the best way to raise the Ground in an Hill, where each Tree is to be planted ; which will advance their Roots above the Surface of the Ground, so that they will not be in Danger of rotting in Winter with Moisture.

When these Trees are propagated by Suckers taken from the Foot of old Trees, they are commonly laid

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into the Ground very close in Beds, where, in dry Weather, they may be frequently water'd, to encourage their putting out Roots. In these Beds they are left two Years; by which time, those that live will be well rooted (tho' a great many of them generally die); then they should be transplanted into the Nursery, and manag'd as hath been directed for the Layers.

There are some who raise the Witch elm from Seeds, which it generally produces in great Plenty, and are ripe in *April*. These should be sown upon a Bed of fresh loamy Earth, and gently cover'd: in dry Weather they should be water'd, and if the Bed is shaded from the violent Heat of the Sun, it will be of great Service to the Seeds (for I always observe the Plants to come up better in the Shade, than when expos'd to the Sun). When the Plants come up, they should be carefully clear'd from Weeds; and after they have stood two Years in the Seed-bed, they will be fit to plant out into the Nursery, where they must be manag'd as the former.

Sometimes the common *English* Elm will produce Seeds; but it is not so constantly fruitful as the Witch-elm, which seldom fails to produce great Quantities, when they have arrived to a due Maturity; which Seeds will fall to the Ground, and when they light upon a Spot which is not disturb'd, the Plants will come up in great Plenty.

The Timber of the common *English* Elm is generally prefer'd to the rest; tho' that of the Witch-elm is often as good, and is the largest Tree, when planted on a kindly Soil; but the *Dutch* Elm affords the worst Timber, and never will grow to the Stature of either of the other Sorts; so that this should not be cultivated

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for the Timber: therefore the best way to be sure of the Kinds which a Person would choose to propagate, is to have a Nursery of Stools, in order to furnish Layers; for when they are grubb'd up from Hedges, there will often be many Sorts intermix'd, especially if the People who go about to gather them, furnish them; because they take them indifferently, where-ever they can procure them; so that when they are planted out thus blended together, there will be a considerable Difference in their Growths, which will deface the Plantation.

URENA, *Indian Mallow*.

The Characters are;

It hath a malvaceous Flower, with a double Empalement; the outer being of one Leaf, slightly cut at the Brim into five Parts; but the inner is five-leaved, being cut to the Bottom; the Flower is composed of five Leaves, which are oblong and blunt at their Extremity, but are narrow at their Base: in the Centre there are many Stamina, which are joined, and form a Column at their Base, but spread open above: the Pointal afterward changes to a pentagonal Fruit, which is burry, and divides into five Cells, each having one angular Seed.

The Species are;

1. URENA *foliis angulatis*. Lin. Hort. Cliff, *Indian Mallow*, with angular Leaves.

2. URENA *foliis lobatis, petiolis longissimis asperis*. *Indian Mallow*, with Leaves deeply divided into several Lobes, and very long rough Footstalks.

3. URENA *foliis bryoniae albæ divisis*. *Indian Mallow*, with Leaves divided like those of the White Bryony.

This Name of Urena was applied to this Genus by Dr. Dillenius, in the *Hortus Elthamensis*, as the Characters

acters of the Plants differ from all the Genera of the malvaceous Tribe; and this being a Name applied to it in the *Hortus Malabaricus*.

These three Species are Natives of the *East-Indies*, from whence I received their Seeds, by the Title of *Indian Mallow*; which, for want of a better *English* Name, I have continued to them.

These Plants grow about two Feet high, and toward their Top they put out some Side-branches; these are garnish'd with Leaves placed alternately at a considerable Distance. Those of the first Species are cut into several obtuse Angles; but those of the two latter are divided deeply into several obtuse Portions. The Flowers are produc'd from the Wings of the Leaves, which are small, so make no great Appearance; therefore these Plants are only kept in the Gardens of those who are curious in Botany.

They are propagated by Seed, which should be sown on an Hot-bed early in the Spring; and when the Plants are fit to remove, they should be transplanted into Pots, and plunged into a fresh Hot-bed to bring them forward: and afterward they must be treated in the same manner as hath been directed for the tender Sorts of *Ketmia*, to which the Reader is desired to turn, to avoid Repetition. If the Plants are brought forward in the Spring, and afterward placed in the Stove, or under a deep Frame, they will ripen Seeds the first Season; but if they should not, the Plants may be preserv'd through the Winter in the Stove, and will ripen their Seeds the following Season; after which the Plants seldom remain.

URTICA, The Nettle.

The Characters are;

It hath an apetalous Flower, consisting of many Stamina, included in an Empalement; but those are barren; for the Embryoes are produced either on different Plants, or on different Parts of the same Plant, without any visible Flower, which afterward becomes a bivalve Seed-vessel, sometimes gather'd into round Heads, and at other times are small and hairy, inclosing several Seeds.

The Species are;

1. URTICA urens maxima. C.B.P. The greatest Stinging-nettle.

2. URTICA urens minor. C.B.P. The lesser Stinging-nettle.

3. URTICA urens pilulas ferens, 1. Dioscoridis, semine lini. C. B. P. Pill bearing Stinging-nettle, with a Seed like Flax.

4. URTICA altera pilulifera, parietariae foliis. H. R. Par. Another Pill-bearing Stinging-nettle, with Leaves like Pellitory, commonly call'd Spanish Marjoram.

5. URTICA pilulifera, folio angustiori, caule viridi, Balearica. Salvador. Narrow-leav'd pill bearing Stinging-nettle from Majorca, with a green Stalk.

6. URTICA maxima racemosa Canadensis. H. R. Par. The greatest branching Nettle of Canady.

7. URTICA Canadensis, myrrhidis folio. Inst. R. H. Canady Nettle, with a Leaf of sweet Cicely.

8. URTICA racemosa Americana, amplo coryli folio. Plum. Cat. Branching American Nettle, with a large Hazel-leaf.

9. URTICA racemifera maxima Sinarum, foliis subtus argenteis, lanugine villosis. Pluk. Amalth. Greatest branching Nettle of China, with Leaves which are white, and woolly underneath.

10. URTICA foliis profunde laciniatis, semine lini. Amman. Ruth.

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Siberian Nettle, with deeply - cut Leaves, and a Flax-seed.

The first of these Sorts is a very common Weed upon the Sides of Banks, Ditches, and other uncultivated Places, where its Roots will spread, and over-run the Ground; so that it should always be carefully extirpated from Gardens. It is sometimes used in Medicine; but may be easily procured from the Fields at almost any Season.

The second Sort is also a very common Weed in Gardens, and cultivated Fields; but, being an annual Plant, it is not so difficult to eradicate as the former.

The third, fourth, and fifth Sorts are preserved in many Gardens for Variety; but the fourth, which is commonly called *Spanish Marjoram*, is most common in the *English* Gardens, where it is cultivated for making Sport: many ignorant Persons, taking it for a Sort of Marjoram, are often severely stung by smelling to it; and others put it into the Middle of Nosegays, amongst other Greens, which they present to Persons who are not acquainted with the Plant; and by smelling to it they suffer in like manner as the former.

The third Sort is mention'd to grow wild in *England*; but the other two are brought from warmer Countries.

All these Plants may be easily propagated by sowing their Seeds in *March*, upon a Bed of light rich Earth; and when the Plants are come up, they should be transplanted out into Beds, or the Borders of the Pleasure garden, interspersing them amongst other Plants, that they may not be easily discover'd by Persons whom there is a Design to deceive, by gathering a Sprig from them to smell to. After these Plants have

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taken Root, they will require no farther Care, but only to keep them clear from Weeds: in *June* they will flower, and their Seeds will ripen in Autumn; which, if permitted to shed upon the Ground, will come up the following Spring, and flourish without any farther Care.

The Seeds of the third Sort are sometimes used in Medicine.

The sixth Sort is very common in many *English* Gardens; where it is preserv'd more for the sake of Variety, than for any Beauty. This hath an abiding Root, which sends forth a great Number of Shoots every Spring, which rise about three Feet high, and form a thick Tuft or Bush, which continues green til the Autumn, when the Shoots decay to the Root. This may be propagated by parting of the Root in the Spring, and may be planted in almost any Soil or Situation, and will endure the severest Cold of this Climate in the open Air.

The seventh Sort is also preserv'd in some curious Gardens, for the sake of Variety. The Leaves of this Plant are finely cut and jagged into many Parts, in some manner resembling those of sweet Cicely. This is also a very hardy Plant, and may be treated as the former.

The eighth Sort was discover'd by Father *Plumier* in *America*. This is more impatient of Cold than the other; so should be planted in Pots, and placed in Shelter in the Winter-season, otherwise it will not live in this Country. But as it is a Plant of little Beauty, it is only preserved by some curious Persons for Variety.

The ninth Sort retains its Leaves all the Winter; which, being very large, and hoary underneath, make an agreeable Variety in the Green-house in the Winter-season. The

Stems

Stems of this Plant rise four Feet high, or more ; and these often branch out, at the Top, into Side-shoots ; and the Flowers (which are like those of the common Nettle) are produced from the Wings of the Leaves. This Sort is too tender to live in the open Air in Winter ; wherefore the Plants should be potted, and in Autumn removed into the Green-house ; where, if they are secured from the Frost, and frequently refreshed with Water, they will thrive extremely well. In Summer they may be placed abroad in a shelter'd Situation, and in dry Weather they must be plentifully water'd ; for they are very thirsty Plants. This may also be propagated by parting of the Roots, which should be done in May, when they are removed out of the Green-house ; for at that Season this Plant is in its least Vigour, the Winter being the Time when it is most flourishing. The Seeds of this Plant were brought from *China*, where the Plant is call'd *Peama*.

The tenth Sort came from *Siberia*, and, being an Exotic, is preserv'd in some Botanic Gardens, for the sake of Variety ; but it must be confined, otherwise it will become a very bad Weed in Gardens.

This will grow to the Height of five or six Feet in good Ground ; the Leaves are plac'd by Pairs, and are deeply cut ; but the whole Plant stings like the common Nettle, and the Roots abide, though the Plants decay annually to the Surface of the Ground.

UVA URSI, The Spanish Redwhort.

The Characters are ;

It hath a globular bell-shaped Flower, consisting of one Leaf, from whose Empalement arises the Pointal, fixed like a Nail in the hinder Part of the Flower ; which afterward becomes

a soft Berry or Fruit, of a spherical Form, inclosing hard Seeds, which are some plain, and others gibbous.

There is but one Species of this Plant at present known ; viz.

UVA URSI. *Clus. Hist. Spanish Redwhort.*

This Plant is very near akin to our common Whorts or Bilberries : it rises about a Foot high, and hath several flexible Branches, which are cover'd with a redish Bark, somewhat like the young Branches of the Strawberry-tree : these are thinly beset with oblong stiff green Leaves, which are serrated on their Edges. The Flowers grow on the Top of the Branches, which are of a whitish-blue Colour : these are succeeded by red Berries, somewhat larger than those of our common Whorts, which have an acid Taste.

This Plant must be treated in the same manner as our *Vitis Idæa*, or Bilberry ; which is, to procure the Plants, with Balls of Earth to their Roots, from the Place of its native Growth ; because the Seeds seldom grow, and, when they succeed, it will be a long time before the Plants will grow to any Size : but as there are Directions for the Management of these Plants exhibited under the Article of *Vaccinium*, I shall not repeat them in this Place.

VULNERARIA, Woundwort.

The Characters are ;

It hath a papilionaceous or (pea)bloom Flower, out of whose tubular and turgid Empalent arises the Pointal, which afterward becomes a short Pod filled with roundish Seeds : to these Notes may be added, That the Pod is inclosed in a membranous Bladder, which was before the Empalement.

The Species are :

1. VULNERARIA *rustica*. *J. B.* Rustic Woundwort, Kidney Vetch, or Lady's Finger.

2. *VULNERARIA rustica, flore albo.* *Inst. R. H.* Rustic Woundwort, with a white Flower.

3. *VULNERARIA flore purpurascens.* *Inst. R. H.* Rustic Woundwort, with a purplish Flower.

4. *VULNERARIA pentaphyllos.* *Inst. R. H.* Five-leav'd Woundwort.

5. *VULNERARIA Cretica, flore parvo vario.* *Tourn. Cor.* Candy Woundwort, with a small variable Flower.

The first Sort grows wild on poor chalky Ground in divers Parts of *England*; but is rarely cultivated in Gardens. This sends forth several Stalks, from the Root, which are about eight or nine Inches long, alternately beset with hairy Leaves, which are composed of four or five Pair of Lobes, terminated with an odd one. On the Top of the Stalks the Flowers are produced, which are small, and of a yellow Colour, collected together in a broad Head, which are succeeded by short Pods fill'd with roundish Seeds. This Plant flowers toward the End of *May*, and the Seeds are ripe in *July*.

The second Sort is a Variety of the first, from which it only differs in the Colour of its Flowers, which are white.

The third Sort is found wild in some Parts of *Wales*, from whence the Seeds and Plants have been procured by some curious Botanists, who preserve them in their Gardens. This Sort produces pretty purplish Flowers, collected into Heads, which make an agreeable Appearance.

The fourth Sort is found wild in *Italy, Sicily*, and some other warm Countries; but in *England* it is preserv'd in some curious Gardens for the sake of Variety. This is an annual Plant, which perishes with the first Approach of Winter. The

Seeds of this Plant should be sown about the Middle of *March*, on a Bed of light Earth, in an open Situation, where they are design'd to remain; because the Plants do not very well bear transplanting. Therefore the best Method is, to sow the Seeds in small Drills, made two Feet asunder; and when the Plants are come up, they should be thinned where they are too close, so as to leave them six or eight Inches asunder in the Rows; and then keep the Ground clear from Weeds, which is all the Culture they require. The Branches of this Plant spread flat on the Ground, and the Flowers are produced in large Bladders from the Wings of the Leaves. These appear in *June*, and the Seeds will ripen the End of *August*.

If some of these Seeds are sown the Beginning of *September*, on a warm dry Border, the Plants will come up in Autumn, and live thro' the Winter (provided it is not very severe), and will flower early the following Summer, whereby good Seeds may be obtain'd; for when the Summers prove cold and wet, those Plants which come up from Seeds sown in the Spring, do not produce ripe Seeds; so that the Species may be lost, where there are not Autumnal Plants.

The fifth Sort was discover'd by *Dr. Tournefort* in the Island of *Candy*, from whence he sent the Seeds to the Royal Garden at *Paris*. This is also an annual Plant; therefore should be manag'd in the same manner as hath been directed for the former Sort.

The first, second, and third Sorts will abide two, and sometimes three Years, before their Roots decay; though they generally are in the greatest Vigour the second Year; for these rarely flower the same Year

Year they are sown. The surest Method to have these Plants succeed in a Garden is, to sow their Seeds in the Autumn, as soon as they are ripe, on a Bed or Border of poor, dry, gravelly, or chalky Soil, on which they will thrive much better than on a rich garden Earth. When the Plants are come up, they should be thinned, leaving them six or eight Inches asunder; and afterward, if they are kept clear from Weeds, they will require no farther Care.

The first Sort was formerly much used by the *Germans*, as a Wound-herb, from whence it obtained its Name; but at present it is not in any Use.

UVULARIA.

The Characters are;

It is of the liliaceous Tribe: the Flower has no Empalement, and is composed of six Leaves, which are long and narrow: in the Centre of the Flower the Pointal arises, being surrounded by six Stamina, each supporting an oblong Summit; the Pointal afterward becomes an oblong three-corner'd Seed-vessel, having three Cells, which are filled with round compressed Seeds.

The Species are;

1. *UVULARIA folio integerrimo.* Flor. Leyd. *Uvularia* with an intire Leaf.

2. *UVULARIA foliis cordatis oblongis.* Flor. Leyd. *Uvularia* with oblong heart-shap'd Leaves.

The first Sort is a Native of *Canada* and *Virginia*, and has been long cultivated in several curious Gardens in *Europe*. It was first ranged in the Genus of *Polygonatum*; and, by Dr. *Boerhaave*, it was placed with the *Fritillaria*; but this Title of *Uvularia* was given to it by Dr. *Linnaeus*, from the Resemblance which the Fruit of it has to the *Uvula*.

The second Sort is a Native of

Germany, from whence it has been brought to several curious Gardens.

They are both very hardy Plants, so will live in the full Ground. They produce their Flowers in *March* and *April*, at the same Season with the *Fritillarias*; but as the Flowers have not much Beauty, the Plants are only cultivated for the sake of Variety. They are only propagated by parting of their Roots; for they do not produce Seeds in *England*. The best Season for removing them is about *Michaelmas*, when their Roots may be separated, and planted in the Borders of the Flower-garden; but this should be done every third Year; for if they are often removed, the Plants will not thrive so well, or flower so strong, as when they stand two or three Years unremov'd. They delight in a Soil not too wet or stiff, but a gentle Hazel-loam.



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WALKS are made either of Gravel, Sand, or Grass; these three Sorts of Walks are the most common in *England*; but where Gravel or Sand cannot be procur'd, they are sometimes laid with powdered Coal, Sea-coal Ashes, and sometimes of powdered Brick; but these are rarely used, when either Gravel or Sand can be procur'd: however, where Sea-coal Ashes can be had, it is preferable to the powder'd Coal or Bricks; because the Ashes bind very hard, and never stick to the Feet in frosty Weather, which is a very good Quality; but the Darkness of its Colour has been an Objection to the Use of it in Gardens:

dens: however, for Wilderness-walks I think it is preferable to most other Materials. But I shall proceed to give Directions for the making of the several Sorts of Walks, and first of the Gravel-walks.

In order to the laying of Walks in Gardens, it will be very proper, that the Bottom of them be fill'd with some Lime-rubbish, or coarse Gravel, Flint-stones, or other rocky Materials; which will be serviceable in preventing Weeds from growing through the Superficies of the Gravel. This Bottom should be laid eight or ten Inches thick, over which the Coat of Gravel should be six or eight; which Gravel should be fine, but yet not screened, because that spoils it. This should be laid on an Heap, rounding, that the larger rough Stones may run down on the Sides; which being every now-and-then raked off, the Gravel by that means will be sufficiently fine.

After the Gravel has been laid to the Thickness above-mentioned, then the Walks must be raked true, and level from all great Drips, as well as little Holes. By this means most of the Stones of the Walks will be raked under your Feet; which should rather be gently sprinkled back again, over the last Length that is raked, than buried (as is the Practice of many Gardeners); for by this means the Walk will lie much harder, and the coarsest Stones will very much contribute to its Firmness, provided they are not too large, or angular, because the latter are often displaced by walking.

There is also a great Fault committed frequently, in laying Walks too round; and some to that Degree, that they cannot be walked on with that Ease and Pleasure that ought to be; and besides, this too

great Rounding takes off much from the seeming Breadth of the Walk.

The common Allowance for a Gravel-walk of five Feet Breadth, is an Inch in the Crown; so that if a Walk be twenty Feet wide, according to this Proportion, it will be four Inches higher in the Middle than on each Side; one of thirty Feet, six Inches; and so on.

When a Walk has been thus carefully laid, or rather, after every Length, or Part of it (which commonly is about fifteen Feet each), then it should be roll'd well, both in Length, and also cross-ways. The Person who rolls it, should wear Shoes with flat Heels, that he may not make Holes in the Walks; for when they are once made in a new Walk, it will not be easy to roll them out again.

In order to lay Gravel-walks firm, it will be necessary to give them three or four Water-rollings; that is, they must be roll'd when it rains so very fast, that the Walks swim with Water: this will cause the Gravel to bind, so that when the Walks come to be dry, they will be as hard as Terrace.

Iron-mould Gravel is accounted the best for binding; or Gravel with a little binding Loam amongst it; which latter, though it be apt to stick to the Heels of Shoes in hot wet Weather, yet nothing binds better in dry Weather.

When the Gravel is over-sandy or sharp, Loam is frequently mix'd with it; which, if they be cast together in Heaps, and well mix'd, will bind like a Rock; whereas loose Gravel is as uncomfortable and uneasy to walk on, as any other Fault in a Walk can render it.

The best Gravel for Walks is such as abounds with smooth Pebbles.

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(as is that dug at *Black-beath*), which, being mix'd with a due Proportion of Loam, will bind like a Rock, and is never injur'd by wet or dry Weather; and the Pebbles, being smooth, are not so liable to be turn'd up, and loosen'd by the Feet in walking, as are those which are angular and rough; for where Walks are laid with such Gravel as is full of irregular Stones, they appear unsightly in a Day's time after rolling; because the Stones will rise upon the Surface whenever they are walk'd upon; but the smooth Pebbles will remain handsome two or three Days without rolling.

The Width of these Walks must always be proportion'd to their Length, and the Size of the Garden; but small Walks are every-where disagreeable; so that if the Walks were to be only two hundred Feet long, I should advise them to be made fourteen or fifteen Feet wide: for it is much better to have but few Walks in a Garden, and those to be spacious, than to make many small Walks, as is often practised.

Gravel-walks are very necessary near the House; because, being soon dry after Rain, they are proper for walking on, in all Seasons. But then these should be but few, and those ought to be large and magnificent, proportionable to the Grandeur of the House and Garden. The principal of these Walks should be elevated parallel with the House, so as to form a Terrace: this should extend itself each way, in proportion to the Width of the Garden; so that from this there may be a Communication with the Sand-walks, without going on the Grass; or there should be Side-walks of Gravel to lead to them, that there may be a dry Walk continued quite through the Gardens. But there is not a more

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ridiculous Sight, than that of a strait Gravel-walk, leading to the Front of the House, intersecting the Grass, so as to make it appear like the stiff formal Grass plots frequently made in little Court-yards by Persons of low Taste.

Grass-walks in a Garden are both ornamental and delightful in Summer-time, and dry Weather.

These may be made either by laying them with Turf, or sowing them with Hay-seed, and raking them fine and level; which, keeping them well roll'd, and frequently mow'd, will make the Grass fine: but those which are laid with Turf, are preferable to the sown Walks.

These may be laid a little rounding, to cast off the Water the better; but the Slope must not be so great as to be discover'd with the Eye. About a fourth Part of the Roundness allow'd for Gravel-walks will be sufficient for these, if in wet Ground; but if the Ground be dry, it is the best way to lay them quite level.

Sometimes there are Water-tables on each Side of these Walks, which is very good for draining them, and also for keeping the Grass and Weeds from mixing with the Borders; and, besides, these Water-tables render the Walks the handsomer, and appear the more beautiful.

These Water-tables ought to be new-cut once or twice a Year; and this ought to be done by a strait Line, as exactly as possible.

The oftener these Walks are mowed and rolled in Summer, the thicker their Bottoms will be; and in Autumn the Grass should be kept very short, and well roll'd; for, if it be permitted to grow pretty long at this Season, the Blade will decay in Winter, and greatly injure their Roots. The Worm-casts must also be carefully beat to-pieces with a long

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long Ash-pole, and spread over the Grass: this the Gardeners call *Poll-ing of a Walk*, which is done by brushing the Surface of the Ground strongly with a slender Pole: the oftener this is repeated, the better it is for the Grass; besides, it will destroy the Worm-casts, and render the Walks more beautiful.

Having given Directions for the making of Gravel and Grass-walks, I shall come next to treat of Sand-walks, which are now very frequently made in Gardens; as being less expensive in the making, and also in keeping, than either of the former: and in very large irregular Gardens, which are such as most Persons esteem, this is a very great Article: for as the greatest Part of the Walks which are made in Gardens twist about in an irregular manner, it would be very difficult to keep them handsome, if they were laid with Gravel. And as these Walks are for the most part shaded by Trees, so the dripping of the Water from their Branches, in hard Rains, would wash the Gravel in Holes, and render the Walks very unsightly. When these Wood-walks are Grass, they do not appear slightly, nor are they very proper for walking on: for after Rain they continue damp so long, that they become unhealthy to walk on; and the Grass generally grows spiry and weak for want of Air; and by the continual dropping of the Trees, will by degrees be destroyed. Therefore it is much better to lay these Walks with Sand, which will be dry and wholesome; and whenever they appear mossy, or any Weeds begin to grow on them, if they are shovelled with a *Dutch Hoe* in dry Weather, and then raked over, it will destroy the Weeds and Moss, and make the Walks appear as fresh

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and handsome as if they had been new-laid.

In the modern Way of laying out Gardens, the Walks are carried through Woods and Plantations; so that these are shady and convenient for walking in the Middle of the Day. These are usually carried about, winding as much as the Ground will admit of, so as to leave a sufficient Thickness of Wood, to make the Walks private; and that the Persons who are walking in one Part of them, may not be seen by those who are in any of the other Parts. Where these Walks are contrived with Judgment, a small Extent of Ground will admit of a great many Turns; so that a Person may walk some Miles in a small Garden. But these Turns should be made as natural as possible, so as not to appear too much like a Work of Art, which will never please so long as the former.

The Breadth of these Walks must be proportion'd to the Size of the Ground, which in a large Extent may be twelve or fourteen Feet wide; but in small Gardens five or six Feet will be sufficient. There are some Persons who allow a much greater Breadth to their Walks, than what I have assign'd to the largest Gardens; but as these Walks are suppos'd to be shaded by Trees, so, when they are made too broad, the Trees must be planted close to the Sides of the Walks; and then it will be a long time before they will afford a sufficient Shade, if the Trees are young. Therefore I imagine, the Width here allowed will by most People be thought sufficient, especially as the Walks are design'd to wind as much as the Ground will allow; because the wider they are, the greater must be the Turns; other-
wise

wife the Walks will not be private for any small Distance. Besides, as it will be proper to line the Sides of these Walks with Honeyfuckles, Sweetbrier, Roses, and many other sweet-flowering Shrubs; so the tall Trees should be placed five or six Feet from the Walk, to allow room for these. But as I shall particularly treat of the Method of laying out Wildernesses, and planting of them, in such a manner, as to render them as nearly resembling a natural Wood as possible, under its proper Head; I shall add nothing more in this Place, except a few common Directions for making of these Sand-walks.

When the Ground is traced out in the manner as the Walks are design'd, the Earth should be taken out of the Walks, and laid in the Quarters. The Depth of this must be proportion'd to the Nature of the Soil; for where the Ground is dry, the Walks need not be elevated much above the Quarters; so the Earth should be taken out four or five Inches deep in such Places; but where the Ground is wet, the Bottom of the Walks need not be more than two Inches below the Surface, that the Walks may be rais'd so high, as to throw off the Wet into the Quarters; which will render them more dry and healthy to walk on.

After the Earth is taken out to the intended Depth, the Bottom of the Walks should be laid with Rubbish, coarse Gravel, or whatever of the like Nature can be most readily procured. This should be laid four or five Inches thick, and beaten down as close as possible, to prevent the Worms from working thro' it; then the Sand should be laid on about three Inches thick; and after treading it down as close as possible, it should be raked over, to level and

smooth the Surface. In doing of this; the Whole should be laid a little rounding to throw off the Wet: but there will be no Necessity of observing any Exactness therein; for as the whole Ground is to have as little Appearance of Art as possible, the rounding of these Walks should be as natural; and only so contriv'd, as that the Water may have free Passage off them.

The Sand with which these Walks are laid, should be such as will bind; otherwise it will be very troublesome to walk on them in dry Weather: for if the Sand be of a loose Nature, it will be mov'd with strong Gales of Wind, and in dry Weather will slide from under the Feet. If, after these Walks are laid, they are well rolled two or three times, it will settle them, and cause them to be firm. If the Sand is too much inclinable to Loam, it will also be attended with as ill Consequence, as that which is too loose; for this will stick to the Feet after every Rain; so that where Sand can be obtain'd of a middle Nature, it should always be preferr'd.

In some Countries where Sand cannot be easily procur'd, these Walks may be laid with Sea-shells well pounded, so as to reduce them to a Powder, which will bind extremely well, provided they are rolled now-and-then: but where neither of these can be easily procured, Sea-coal Ashes, or whatever else can be gotten, which will bind, and be dry to the Feet, may be used for this Purpose: and where any of these can only be had in small Quantities, the Walks should have a greater Share of Rubbish laid in their Bottom, and these spread thinly over them; and in most Places Rubbish, rough Stones, or coarse Gravel, may be easily procured.

WALLS are absolutely necessary
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in Gardens, for the ripening of all such Fruits as are too delicate to be perfected in this Country, without such Assistance. These are built with different Materials; in some Countries they are built of Stone, in others with Brick, according as the Materials can be procured best and cheapest.

Of all Materials proper for building Walls for Fruit-trees, Brick is the best; in that it is not only the handsomest, but the warmest and kindest for the ripening of Fruit; besides that, it affords the best Convenience of Nailing; for smaller Nails will serve in them than in Stone-walls, where the Joints are larger; and Brick-walls, with Copeing of Free-stone, and Stone Pilasters or Columns, at proper Distances, to separate the Trees, and break off the Force of the Winds, make not only the most beautiful, but the most durable Walls of any others.

In some Parts of *England* there are Walls built both of Brick and Stone, which have been very commodious. The Bricks of some Places are not of themselves substantial enough for Walls, nor are they any-where so durable as Stone; and therefore some Persons, that they might have Walls both substantial and wholesome, have built double ones, the Outside being of Stone, and the Inside of Brick, or a Stone-wall lined with Brick: but when these are built, there must be great Care taken to bond the Bricks well into the Stone, otherwise they are very apt to separate one from the other; especially when Frost comes after much Wet; which swells the Morter, and frequently throws down the Bricks, when the Walls are only faced with them, and not well tied into the Stone.

Where the Walls are built intirely of Stone, there should be Trelases

fix'd up against them, for the more convenient fastening of the Branches of the Trees: the Timbers of these Espaliers need not be more than an Inch and an half thick, and about two Inches and an half broad: these should be fix'd cross each other, at about four Inches Distance; for if they are at a much greater Distance, it will be difficult to fasten the Shoots of the Trees properly: as this Trelase will be laid close to the Wall, the Branches of the Trees will be laid about two Inches from the Wall; in which Position the Fruit will ripen better than when it lies quite close to the Wall; so that where Stone-walls are built, there should always be these Espaliers framed against them; which will render these Walls very good for Fruit-trees; which, without the Espaliers, seldom are found to answer the Purpose of ripening the Fruits well; besides the Inconvenience of having no good Fastening for the Branches of the Trees.

There have been several Trials made of Walls built in different Forms; some of them having been built semicircular, others in Angles of various Sizes, and projecting more toward the North, to screen off the cold Winds: but there has not been any Method as yet, which has succeeded near so well, as that of making the Walls strait, and building them upright.

The fairest Trial which I have seen made of circular Walls, was at *Goodwood* in *Sussex*, the Seat of the Duke of *Richmond*, where, in the Middle of two South Walls, there were two large Segments of Circles, in which there were the same Sorts of Fruit-trees planted, as against the strait Parts of the Walls: but there never was any Fruit upon the Trees in the circular Part of the Walls, which came to Maturity; nor were the

the Trees of long Continuance, being blighted every Spring; and in a few Years were totally destroyed: and when the Branches of those Trees, which grew upon the strait Parts of the Walls, had extended themselves so far, as to admit of their being led into the circular Parts of the Walls, they were constantly blighted and kill'd.

When the Trees which had been planted in the circular Parts were destroyed, the Walls were filled with Vines; but the Grapes of the same Sort were a full Month later than those growing against the strait Parts of the Walls; so that they rarely ripen'd, which occasion'd their being rooted out, and Figs were afterward planted; but the Fruit of these succeed little better; nor can it be supposed, that any Trees or Plants will thrive so well in these Circles, when there is a constant Draught of Air round them, which renders the Situation much colder than the open free Air.

I have also seen at Mr. *Le Cour's* Garden in *Holland*, some Walls built in Angles of different Forms; but these succeeded no better than the Circles before-mentioned; for I did not find one Tree in Health against the Walls; nor did they produce Fruit.

There are several other Schemes, which have been proposed by different Persons, for the building of Walls to accelerate the ripening of Fruits; among which there was a very ingenious Book written some Years ago, intituled, *Fruit-walls improv'd, by inclining them to the Horizon*; in which the Author has shewn, by Calculation, that there will be a much greater Number of the Rays of the Sun fall upon such Walls, than upon those which are built perpendicular; and from thence has

drawn Calculations, that Walls so built will be of great Service in the accelerating of Fruit; and has taken the Trouble of calculating the different Inclinations, which such Walls should have in the different Climates, in order to receive the greatest Number of the Sun's Rays. This Theory seems to have all the Demonstration necessary for its Support; but upon Trial has not succeeded in the least; for as these Walls must be built against Banks of Earth, the Damps which arise from the Ground overbalance the Advantage of the Sun's Rays: beside, these sloping Walls being more expos'd to the cold Dews in the Night, the Fruit will be much more chill'd thereby; and in the Spring the morning Frosts will prove much more destructive to the tender Blossoms of the Fruit-trees, as they will be more expos'd to them, than against an upright Wall: add to this their being much more expos'd to the Winds and the Rain, and it will be found, by comparing the Advantages proposed from these Walls, with the Disadvantages to which the Fruit-trees will be expos'd, that upright Walls will have the Preference; for it is not the strongest Rays of the Sun, in the Heat of Summer, which is so much wanting for ripening of Fruit, as the Continuance of a moderate Share of Warmth; and, above all, the having of the Sun in a Morning, to dry off the cold Dews of the Night early, is of the greatest Use; which renders those Walls which are built inclining to the East preferable to South Walls; as the Fruit will always ripen earlier against them.

There are some Persons who recommend the painting of Walls black, or of a dark Colour; as they suppose the dark Colour will imbibe more of the Sun's Rays, so will retain

tain the Warmth longer: this also answers better in Theory than in Practice; for altho' it must be allowed, that a black Wall is warmer to the Touch than a common Brick-wall, yet, as the Fruit generally is situated at a small Distance from the Wall, it receives no Benefit from the Warmth of the Wall; and it is the reflected Heat which accelerates the ripening of Fruit: therefore I would advise every one to make fair Trials of these Things, before they put them in Practice, and not to take upon Trust what they may be told by Persons who are too sanguine in recommending to others Schemes which they have adopted upon very slight Principles, or perhaps upon a single Trial: this Painting of the Walls is recommended by the same Person who wrote upon inclining Walls; and he has propos'd this, upon the same Principles; but the introducing of these Schemes should be avoided, until there have been sufficient Trials made, to warrant their Use.

Where Persons are willing to be at the Expence, in the building of their Walls substantial, they will find it answer much better than those which are slightly built, not only in their Duration, but also in their Warmth: therefore a Wall two Bricks thick will be found to answer better than one Brick and an half: and if in the building of Garden-walls they are grouted with soft Morter, to fill and close all the Joints, the Walls will be much stronger, and the Air will not so easily penetrate thro' the Walls, as it does thro' those which are commonly built.

According to the modern Taste in Gardening, there are very few Walls built round Gardens; which is certainly very right, not only with re-

gard to the Pleasure of viewing the neighbouring Country from the Garden, but also in regard to the Expence, 1. Of building these Walls: 2. If they are planted with Fruit, as is frequently practised, to maintain them will be a constant Charge, without receiving much Profit or Pleasure: for when there is too much Walling planted with Fruit-trees, they are seldom taken much care of; so that the Quantity of Fruit produc'd will be small, and that ill-nourish'd, and bad-tasted: therefore the Quantity of Walling should be proportion'd to the Fruit consumed in the Family: but as it will be necessary to inclose the Kitchen-garden, for the Security of the Garden-stuff, so, if that be walled round, it will contain as much Fruit as will be wanted in the Family; because the Kitchen-garden is always proportion'd to the Number of Persons maintained: but if the Quantity of Walling which surrounds the Kitchen-garden should be judged too little for the Supply of Fruit, there may be a cross Wall built thro' the Middle of the Kitchen-garden; or, where the Length of the Garden will admit, there may be two cross Walls built; but this must not be done where there is not room to place the Walls at least eighty Feet asunder: and as the Kitchen-garden should always be placed out of Sight from the House, the Walls may be hid by Plantations of Trees at some little Distance, which will be of Use in sheltering the Fruit.

The best Aspect for Walls in *England* is, to have one Point to the Eastward of the South; for these will enjoy the Benefit of the morning Sun, and will be less expos'd to the West and South-west Winds (which are very injurious to Fruits in *England*) than those Walls which are built

built due South. I know there are many Persons who object to the turning of Walls the least Point to the East, on account of the Blights which they say come from that Quarter in the Spring; but, from many Years Experience and Observation, I can affirm, that Blights as often attack those Walls which are open to the South-west, as those which are built to any other Aspect: and I believe, whoever will be at the Trouble to observe for seven Years, which aspect Walls suffer most from Blights, will find those which are built with a Point to the Eastward of the South, as seldom blighted, as those which are turned to any other Aspect: therefore, in the Contrivance of a Kitchen-garden, there should be as great Length of these Walls built, as the Situation of the Ground will admit.

The next best Aspect is due South, and the next to that South-east, which is preferable to the South-west, for the Reasons before assigned: but as there will, for the most part, be South-west and West Walls in every Garden; these may be planted with some Sorts of Fruit, which do not require so much Heat to ripen them, as those design'd for the best Walls: but where-ever there are North Walls, those will only be proper for Baking-pears and Plums, Morello-cherries for Preserving; or some Duke-cherries may be planted against these Walls, to continue them longer in the Season, which will be found very useful in supplying the Table until Peaches, Nectarines, and Plums, are ripe.

Where Persons are very curious to have good Fruit, they erect a Trelise against their Walls, which projects about two Inches from them, to which they fasten their Trees;

which is an excellent Method, because the Fruit will be always at a proper Distance from the Walls, so as not to be injured by them, and will have all the Advantage of their Heat. And by this Method the Walls will not be injured by driving Nails into their Joints, which, by every Year being drawn out, draws out the Morter from between the Bricks, and thereby makes Holes, in which Snails and other Vermin will harbour, and destroy the Fruit; and the Walls will be also greatly impaired.

These Trelases may be contrived according to the Sorts of Fruit which are planted against them. Those which are design'd for Peaches, Nectarines, and Apricots (which, for the most part, produce their Fruit on the young Wood), should have their Rails three, or, at most, but four, Inches asunder every Way: but for other Sorts of Fruit, which continue bearing on the old Wood, they may be five or six Inches apart; and those for Vines may be eight or nine Inches Distance. For as the Shoots of Vines are always trained at a much greater Distance, than those of any other Sort of Fruit, the Trelases for these need not be near so close; especially as those must be for Peaches and Nectarines, whose Shoots are generally shorten'd to about five or six Inches or less; so that, if the Rails are not pretty close, many of the short Branches cannot be fasten'd to them.

These Trelases may be made of any Sort of Timber, according to the Expence which the Owner is willing to bestow; but Fir is most commonly used for this Purpose, which, if well dried and painted, will last many Years; but if a Person will go to the Expence of Oak, it will last found much longer. And

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if any one is unwilling to be at the Expence of either, then a Trelase may be made of Ash-poles, in the same manner as is practised in making Espaliers; with this Difference only, that every fourth upright Rail or Post should be very strong, and fasten'd with iron Hooks to the Wall, which will support the Whole: and as these Rails must be laid much closer together, than is generally practised for Espaliers, these strong upright Rails or Posts will not be farther distant than three Feet from each other. To these the cross Rails which are laid horizontally should be well nail'd, which will secure them from being displaced, and also strengthen the Trelase; but to the other smaller upright Poles, they need only be fasten'd with Wire. To these Trelases the Shoots of the Trees should be fasten'd with Ozier-twigs, Rope-yarn, or any other soft Bandage; for they must not be nail'd to it, because that will decay the Wood-work.

These Trelases need not be erected until the Trees are well spread, and begin to bear Fruit plentifully; before which time the young Trees may be trained up against any ordinary low Espaliers, made only of a few slender Ash-poles, or any other slender Sticks; by which Contrivance the Trelases will be new when the Trees come to Bearing, and will last many Years after the Trees have overspread them; whereas, when they are made before the Trees are planted, they will be decayed before the Trees attain half their Growth.

Where these Trelases are intended to be made against new Walls, it will be proper to fasten some strong iron Hooks into the Wall, as it is built, at the Distance which the upright Posts are intended to be plac'd; because when these are afterwards

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driven into the Wall, they displace the Morter in the Joints, and injure the Wall.

In the building of the Walls round a Kitchen-garden, the Infides, which are design'd to be planted with Fruit-trees, should be made as plain as possible, so that the Piers should not project on those Sides above four Inches at most; and these should be plac'd about fourteen Feet asunder, in such Walls as are design'd for Peach and Nectarine-trees; so that each Tree may be planted exactly in the Middle between the Piers; which will render them more tightly, and be better for the Trees: but where Apricots, Plums, or Cherries, are to be planted, the Piers may be only ten Feet asunder; and against every other Pier the Trees should be planted, which will allow them sufficient room to spread; and as the Trelase will project as forward as the Piers, the Branches of the Trees may be trained on a Plain: but when the Piers project no more on the Inside of the Garden, they should be built stronger on the Outside, for the better supporting of the Walls.

The usual Thickness which Garden-walls are allow'd, if built with Bricks, is thirteen Inches, which is one Brick and an half: but this should be proportionable to the Height; for if they are all built twelve or fourteen Feet high, as is often practised, then the Foundations of the Walls should be at least two Bricks and an half thick, and brought up level to the Surface of the Ground, of the same Thickness; then they should be set off two Inches on each Side, which will reduce them to two Bricks; and five Feet above the Ground, they may be diminish'd on each Side, to reduce them to the Thickness of a Brick and an half, which must be continued to the Top of the Walls.

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And the Piers in these high Walls should also be proportionably stronger than is commonly allow'd to lower Walls; for as these will be much more exposed to strong Gales of Wind, if they are not well built, they will be in Danger of being blown down. Therefore the Piers of these Walls should be projected the Length of a Brick on their Back-side, and the Thickness of a Brick on their Front: and if these are built about ten or twelve Feet asunder, they will greatly strengthen the Walls.

But there is no Necessity of building Walls higher than nine or ten Feet, unless it be for Pears, which, if properly manag'd, will spread over a great Compass of Walling; but as only some of the latest Winter-pears require the Assistance of a Wall, there need no more but that Part of the Wall where these are design'd, to be built higher; for Peaches and Nectarines never require a Wall higher than nine or ten Feet, provided they are rightly manag'd; because, whenever they are carried to a greater Height, the lower Part of the Wall is unfurnished with bearing Branches. And altho' Apricots, Plums, and Cherries, will frequently grow higher; yet if they are planted at a proper Distance, and the Branches trained horizontally from the Bottom, they will not soon cover a Wall of this Height: and Vines may be kept as low as any Sort of Fruit; for when they are planted against low Walls, they must be treated somewhat after the same manner as those in Vineyards; which is, to cut out the greatest Part of the Wood which produc'd Fruit the preceding Year, and train in new Shoots for the next Year's Bearing, which are rarely left a Yard in

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Length; therefore will not require very high Walls.

If the Pears which are design'd to be planted, are allow'd a South-west Aspect, on which they will ripen very well; then the Wall to this Aspect should be built fourteen Feet high or more; for as these Trees spread very far, when on Free-stocks, they should not be shorten'd, nor stopp'd in their Growth, which will prevent their Bearing, by causing them to send out a great Number of gross luxuriant Shoots, which will never produce Fruit: therefore these should never be planted amongst other Sorts of Fruit-trees, which are of smaller Growth; because then the Walls must appear very unsightly, in having some Trees planted more than double the Distance which the others require; so that as there is no other Sort of Fruit which requires the Assistance of Walls to ripen their Fruit, which need so great room for spreading, as Pears, except it be Figs; there will not require a great Quantity of high Walls; for the latter may be planted against the Back-walls of Offices or Stables, where there is Convenience, because this Fruit is seldom coveted by Servants; and being planted in Places which are much frequented, they will not be in so much Danger of being destroyed by Birds, as those which are in private Places. But I shall now proceed to give some Directions for the building of Hot-walls, to promote the ripening of Fruits, which is now pretty much practis'd in *England*.

In some Places these Walls are built at a very great Expence, and so contriv'd as to consume a great Quantity of Fuel; but where they are judiciously built, the first Expence will not be near so great, nor

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will the Charge of Fuel be very considerable; because there will be no Necessity of making Fires more than three or four Months; beginning about the Middle of *January*, and ending by the Beginning of *June*, when there will be no want of Fires, if the Glasses are close shut every Night, or in bad Weather: for half an Hour's Sun shining on the Glasses at this Season, will sufficiently warm the Air inclosed in the Glasses, for the Growth of any of our *European* Fruits.

There are some Persons who plant Vines, and other Fruit-trees, by the Sides of Stoves, and draw some of their Branches into the Stove, in order to obtain early Fruit; but this is by no means right, because where the Stove is design'd for the Anana's, the Air must be kept much warmer for them, than is required for any of the other Fruits; so that they can never succeed well together; for when there is a sufficient Quantity of Air admitted, to promote the Growth of the other Fruit, the Anana's are starv'd for want of proper Heat; and so, on the contrary, when the Stove is kept up to the proper Heat for the Anana's, it will be too hot for Fruit: and it will also be proper to have the Vines on a particular Wall by themselves, because these require to have a greater Share of Air admitted to them, when they begin to shoot, than Peaches or Nectarines; so that it is by much the better Method to have them separate.

The ordinary Height of these Hot-walls is about ten Feet, which will be sufficient for any of those Sorts of Fruits which are generally forced: for by this the Trees are commonly weaken'd in their Growth, so that they will not grow so vigorously as those which are always ex-

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posed to the open Air; and where there is not a Quantity of Walling planted sufficient to let one Part rest every other Year, the Trees will never be very healthy, and will last but a few Years. The Quantity of Walling to produce early Fruit for a middling Family, cannot be less than eighty or one hundred Feet in Length; therefore where a Person is desirous to have the Fruit in Perfection, and the Trees to continue in a good Condition many Years, there should be three times this Quantity of Walling built; so that by dividing it into three Parts, there will be two Years for the Trees to recover their Vigour between the Times of their being forc'd; whereby a greater Quantity of Bearing-wood may be obtain'd, and the Fruit will be fairer, and in larger Quantities, than when they are forc'd every other Year; and as the Glasses may be contriv'd so as to move from one to the other, the Expence of building the Walls so much longer, will not be very great, because the Frames and Glasses will be the same as for one Year's Fruit.

The Foundations of these Walls should be made four Bricks and an half thick, in order to support the Flues; otherwise, if Part of them rest on Brick-work, and the other on the Ground, they will settle unequally, and soon be out of Order; for where-ever there happen any Cracks in the Flues, thro' which the Smoke can make its Escape, it will prevent their Drawing; and if the Smoke gets within the Glasses, it will greatly injure the Fruit. This Thickness of Wall need not be continued more than six Inches above the Ground, where should be the Foundation of the first Flue; which will raise it above the Damps of the Earth: then the Walls may be
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set off four Inches on each Side, which will reduce it to the Thickness of three Bricks and an half; so that the Back-wall may be two Bricks thick, which is absolutely necessary to throw the Heat out more in Front; for when the Back-walls are built too thin, the Heat will escape thro' them. The Wall in Front next to the Fruit, should be only four Inches thick: whereby there will be an Allowance of nine Inches for the Flues, which may be cover'd with ten Inch Tiles; for if they have half an Inch Bearing on each Side, it will be sufficient.

The Ovens in which the Fires are made, must be contriv'd on the Back-side of the Walls, which should be in Number proportionable to the Length of the Walls. The Length usually allow'd for each Fire to warm, is forty Feet; tho' they will do very well for fifty Feet: but I would not advise the Flues to be longer than this is to each Fire; because when they are made at a great Distance, there is a Necessity of making the Fires so much stronger to warm them; which will occasion the Heat to be too violent near the Fires. These Ovens should be shedded over, to keep out the Wind and Rain; otherwise the Fires will not burn. Some People make these Sheds of Timber; but it is much better to build them of Brick, and tile them over; because the wooden Sheds will in a few Years decay, and afterward will be a constant Charge to keep in Repair; and besides, they may be in Danger of firing, if great Care is not constantly taken of the Fires. As it is absolutely necessary to have the Ovens below the Foundation of the first Flues, there must be Steps down into the Sheds, to come to the Mouth of the Ovens to supply the Fuel. Therefore the Sheds should not be narrower than

eight Feet in the Clear; for as the Steps will require four Feet Space, there should be at least four Feet more for the Person who attends the Fire, to have room to turn himself to clear out the Ashes, and to put in the Fuel. Where the Length of Walling requires two Ovens, it will be proper to have them in the Middle included in one Shed, which will save Expence, and allow more room to attend the Fires; for in this Case the Sheds must be at least ten Feet long, and then they need not be more than six in Breadth. The Steps down into these should be at one End; so that the Door opening into the Sheds, will not be opposite to the Mouths of the Ovens: whereby the Fires will burn more regular; for whenever the Doors are contriv'd to front the Mouths of the Ovens, if the Wind sets directly against them, it will cause the Fire to burn too fiercely, and the Fuel will be soon consum'd.

These Ovens may be contriv'd in the same manner as those which are already describ'd for Stoves: wherefore I shall not repeat it again in this Place; but must observe, that when the two Ovens are join'd together, there should be a Partition-wall at least two Bricks thick between them, otherwise the Fires will soon destroy it; and if there should be the least Hole in the Wall, thro' which the Smoke of the two Fires can communicate, it will prevent their Drawing.

The lower Flue, thro' which the Smoke first passes from the Fire, may be two Feet and an half deep; therefore the Back-wall should be two Bricks thick, as high as to the Top of this Flue; and then it may be set off to a Brick and an half Thickness, which must be continued to the Top of the Wall. The second Flue, which should return over the first, may be

made two Feet deep, the third a Foot and an half, and the fourth one Foot deep; which four Flues, with their Coverings, will rise near eight Feet in Height; so that there will be about two Feet left for the fixing of the Frames at the Top to support the Glasses, and for coping the Wall. And these four Returns will be sufficient to warm the Air in the Frames; for the Smoke will have lost its Heat by the time it has passed thus far.

In the carrying up of these Walls, there should be some strong iron Hooks fasten'd at convenient Distances, which should project about two Inches from the Wall, to which the Trelase must be fasten'd, which is to support the Trees. These Hooks should be long enough to fasten into the Back-wall; for the Wall in Front, being but four Inches thick, will not be strong enough to support the Trelase: but, in placing of them, Care should be had not to lay them cross the Middle of the Flues, because they would obstruct the clearing the Flues of Soot, when ever there should be occasion: so that the best Way is to lay them just under the Tiles which cover each Flue, at about three Feet asunder; which will be near enough, provided the Hooks are made sufficiently strong. As the Flues must be well plaster'd with Loam on their Inside; so, likewise, should the Loam be spread under the Tiles, which cover them, to the Thickness of the Hooks, that the Flues may be very smooth; otherwise the Soot will hang to the iron Hooks, and stop the Smoke from passing. It will also be very proper to cover these Flues on the Side next the Trelase with Hop-bags, or some such coarse Cloth, in the same manner as hath been directed for the Stoves; which will

make them so tight, that no Smoke will find its Way, which, without this Covering, it is very apt to do, thro' the Joints of Walls; especially when they are so thin as these must be built: and this Covering will strengthen the Wall of the Flues, and join the whole Work together. If, at each End of these Flues, there are small Arches turn'd in the Back-walls, in such a manner that there may be Holes open'd to clean the Flues of Soot, whenever there is a Necessity for it, the Trouble will be much less than to open the Flues in Front; and there will be no Damage done to the Trees, nor will the Flues be the least injured by this, which they must be, when they are open'd in Front.

The Borders in Front of these Hot-walls should be about four Feet wide, which will make a sufficient Declivity for the sloping Glasses; and in these Borders there may be a Row of dwarf Peas planted to come early, or a Row of dwarf Kidney-beans, either of which will succeed very well; and if they are not planted too near the Trees, will not do them any Injury. On the Outside of these Borders should be low Walls erected, which should rise about an Inch or two above the Level of the Borders; upon which the Plate of Timber should be laid, on which the sloping Glasses are to rest: and this Wall will keep up the Earth of the Border, as also preserve the Wood from rotting.

The Glasses which are design'd to cover these Walls, must be divided into two Ranges; for as they must reach from the Ground-plate (just above the Level of the Border) to almost the Top of the Wall, they will be near twelve Feet long; which will be too great Length for single Frames, which, when they are more
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than six Feet long, are too heavy to move, especially if the Frames are made of a proper Strength to sustain the Glafs. These Frames should be contriv'd in such manner, as that the upper Row may slide down; and by making on one Side three small Holes in the Wood-work which supports the Frames, at about a Foot Distance, and having a small iron Pin to fix into them, the top Glasses may be let down one Foot, two Feet, or three Feet, according as there may be Occasion. The lower Row of Glasses may be contrived so as to take easily out: but as they must lie sloping, and the upper Row must bear on them, they cannot be contriv'd to slide upward; nor indeed will there be any Occasion of their moving; because it is much better to let the Air in at the Top, than in the Front of the Trees.

The sloping Timbers, which are to support the Glafs-frames, must be fasten'd at Bottom, into the Ground-plate in the Front of the Border, and at the Top into strong iron Cramps fix'd in the upper Part of the Wall for that Purpose. These Timbers should be made of Fir, which will not twist as Oak and some other Wood will, where it is laid in such Position. They must be made substantial, otherwise they will not last many Years, especially as they are design'd to be moveable. On the Top of these should be fix'd a strong Board, under which the upper Row of Glasses should run. The Use of this Board is, to secure the upper Part of the Glasses from being rais'd by the Winds, and also to keep the Wet from getting to the Trees: therefore it should be join'd as close as possible to the Wall, and should project about two Inches over the Glafs-frames; which will

be enough to throw the Wet on the Glasses, and likewise to secure them fast down.

The Breadth of these Frames for the Glasses may be about three Feet, or a little more, according as the Divisions of the Length of the Wall will admit; for a small Matter in their Width is of no Consequence, provided they are not too wide to be easily moved; for when they are wider than a Man can easily reach with his Arms, to manage, they will be very troublesome to carry from one Place to another. The Bars of these Frames, which are to support the Glafs, should be plac'd lengthwise of the Frames; for when they are plac'd across, they stop the Moisture which is lodg'd on the Inside of the Glasses, and cause it to fall in Drops on the Borders at every Bar; which will be very injurious to any Plants which are put there; and, if it falls on the Trees, will greatly damage them, especially when they are in Blossom. The Lead into which the Glasses of these Frames are fix'd, should be very broad, and the Joints well cemented; otherwise the Wet will find an easy Passage thro', and do great Damage to the Fruit.

At each End of the Range of Glasses, there will be an angular Space between the Glasses and the Wall, which must be closely stopp'd to prevent the Air from getting in, which might greatly injure the Fruit. These are by some Persons closely boarded up; but if they are closed with Glasses, so contriv'd as to open to let in Air at proper times, it will be of great Advantage; because when the Wind may be too strong against the Front-glasses, one or both of these End-glasses may be open'd, according to the Warmth of the Air inclos'd; which will be

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often very useful to cool the Air, and to admit a small Quantity of fresh Air to the Fruit.

The Sorts of Fruit, which are usually planted for forcing, are Cherries, Plums, Apricots, Peaches, and Nectarines: but the two last-mention'd rarely succeed well; nor will the Trees continue long; so that they are scarce worth planting against Hot-walls. As for the Vines, I would propose they should be planted by themselves against a particular Wall; for as they will require more Air to be admitted to them when they begin to shoot, than any of the above mention'd Fruits, they will not all succeed, if they are included in the same Frame. As to the others, they will do very well in the same Border, and will demand the same Temperature of Warmth. The best of these Sorts to plant against these Hot-walls, are those here mention'd:

Cherries.

The Early May, and May Duke.

Plums.

The Jean Hative, or White Primordian.

The Early Black Damask, or Morocco.

The Great Damask Violet of *Tours*.

The Drap d'Or.

Peaches.

The Red Nutmeg.

The Red Magdelain.

The Montauban.

Nectarines.

Fairchild's Early Nutmeg.

The Elruge.

Apricot.

The Masculine.

These, being the Sorts which ripen early, are the most proper to plant against these Walls, Altho' some of them are not so valuable as other

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Sorts of these Fruits; yet, as they naturally ripen three Weeks or a Month earlier in the Season, they will be very early ripe, when they are brought forward by artificial Warmth.

In the preparing of the Borders for planting these Fruit-trees, there should be the same Care taken, as for those against open Borders; which, being fully treated of in the former Part of this Work, I shall not repeat here. There must also be the same Care in training up the Trees, when they shoot: but the Trelases need not be made against these Walls, until the Trees are grown large enough to spread, and produce a Quantity of Fruit; till which time they may be supported by any low ordinary Trelase, which will do very well till the time that the Trees will have Strength enough to force, which will not be until the fourth or fifth Year after planting, according to the Progress they have made; for if they are forc'd too young, it will weaken them so much, as that they seldom make vigorous Trees afterward: besides, the Quantity of Fruit which such young Trees produce, is not worth the Expence and Trouble of Forcing; for the Quantity of Fuel used, and the Trouble, will be the same for small Trees, which are not capable of producing more than six or eight Fruit each, as for those Trees which may produce three or four dozen: so that the longer time the Trees have to grow before they are forc'd, the better they will pay for the Trouble and Expence.

But it will be the best way not to have any of the Frames made, nor the Trelase, or any other of the Wood-work, until the Trees are strong enough to force: for if these are done when the Walls are first built, as is by some Persons practised, they

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they will be half decay'd, before there is any Use for them : but then the Persons who are employ'd in making the Trelase, must be very careful in putting it up, not to injure the Trees.

When the Trees have acquired Strength enough to produce a Quantity of Fruit, that Part which is design'd to be forc'd the following Spring, should be carefully pruned at *Michaelmas* ; when the very weak Shoots must be cut out or pruned very short, because these, by being forc'd, will for the most part decay ; and tho' some of them may be full of Flower-buds, yet these Shoots, being weak, cannot nourish them ; so that the Flowers having exhausted all the Sap, the Shoots die soon after, and rarely produce any Fruit. The other more vigorous Shoots should also be shorten'd to a proper Length after the same manner as is directed for those Trees in the open Air ; with this Difference only ; *viz.* that these which are design'd for forcing, should not have their Shoots left so long, because the forcing of them will weaken them ; and consequently, should there be as great a Length of Branches, there will probably be a greater Number of Fruit on them ; because, as these will be screen'd from the open Air, they will not be liable to Blasts ; and the having too many Fruit on the Trees, will render them small, and also too much weaken the Trees : then the Shoots should be all regularly fasten'd to the Trelase at a proper Distance from each other ; so that when the Branches shoot the following Spring, they may not overhang each other. The Reason for my advising these Trees to be pruned so early in the Season, is, that those Branches which are left on, may enjoy the whole Nourishment of the Sap ; so that the Buds will become

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very turgid during the Winter-season, and will be prepared to open when the Fires are set to work.

The time for beginning to make the Fires is about the Middle or Latter-end of *January*, according as the Season is more or less favourable ; for if the Trees are forc'd too early into Flower, they will be in some Danger of miscarrying, if the Weather should prove severe ; so that it is by much the surest Method to begin about the time here directed, because there will be a Necessity of admitting fresh Air to the Trees when they are in Flower ; which cannot be done with Safety, when they flower in very bad Weather. And those Trees which are forc'd into Flower by the Beginning of *February*, will ripen their Fruit as early as most People will desire to eat them ; for the Cherries will ripen early in *April*, and the Apricots by the Beginning of *May* ; and soon after, the Plums, Peaches, and Nectarines, will be ripe.

There are some Persons who plant Strawberries in their Borders before their Fruit-trees, in order to have early Fruit, which often succeed very well : but where ever this is practised, great Care should be taken to keep them from spreading over the Border, because these Plants will exhaust the principal Goodness of the Earth, and thereby injure the Trees ; so that when it is design'd to have Strawberries in these Borders, I would advise, that the Roots should be either planted in Pots, or singly at a good Distance on a shady Border of loamy Earth, one Year before they are design'd to be forc'd ; during which time the Runners should be diligently pull'd off, to encourage the main Root for Fruiting ; and at *Michaelmas* these Plants may be transplanted, with large Balls of Earth to their Roots, into the Borders,

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ders, before the Fruit-trees which are to be forc'd the following Spring ; so that they may have time to get new Root before that Season ; and if these Plants are carefully watered when they begin to shew their Flower-buds, they will produce a good Quantity of Fruit, which will ripen the Latter-end of *April*, or the Beginning of *May* : but then I would also advise, that these Plants be taken away as soon as they have done bearing, that they may not rob the Trees of their Nourishment.

Since I have mention'd this Method of having early Strawberries, I shall take the Liberty to insert another Method, which is often practis'd to obtain this Fruit early in the Spring, tho' it doth not so properly come under this Article ; which is, to train up the Plants either in Pots or Borders, after the manner before directed, for at least one Year or more : then, about the Beginning of *February*, there should be a moderate Hot-bed prepared, in Length proportionable to the Number of Plants designed to be forc'd ; and the Breadth should be proportionable to the Width of the Frames which are design'd to cover them. These Frames may be such as are used for common Hot-beds, to raise early Cucumbers, &c. This Hot-bed must be cover'd with fresh loamy Earth about eight Inches thick, into which the Strawberry Plants should be plac'd, with large Balls of Earth to the Roots, as close as they can conveniently be planted (for, as they must be kept clear from Runners, they will not spread much during the time they remain in the Bed, which will be no longer, than until their Fruit is gone). Then they should be gently water'd to settle the Earth to their Roots, which must be frequently repeated as the Earth becomes dry,

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otherwise they will produce but few Fruit. While the Nights continue cold, the Glasses of the Hot-bed should be cover'd with Mats, to preserve a kindly Warmth in the Beds : but in the Day-time, when the Weather is favourable, the Glasses should be rais'd to admit fresh Air to the Plants ; for if they are too much drawn (especially when they begin to flower), they will not produce much Fruit. If the Season should continue long cold, and the Heat of the Beds should decline, it will be proper to lay some fresh Hot-dung round the Sides of the Beds to renew their Heat, being always careful not to make them too hot ; that will scorch their Roots, and prevent their Fruiting. If the Plants which are planted in these Beds are strong, and in a good Condition for bearing ; and Care be taken in transplanting of them to preserve good Balls of Earth to their Roots, as also to keep a due Temperature of Warmth in the Beds ; they will produce ripe Fruit by the End of *April*, or the Beginning of *May*, in Plenty ; and will continue bearing, until some of those in the open Air come in to succeed them.

The best Kinds of Strawberries to plant for forcing, are the Scarlet ; for the Hautboys grow too rampant for this Purpose.

But to return to the Subject of Hot-walls ; what I have here inserted concerning the forcing of Fruits, has been only to obtain these Fruits earlier in the Season, than they would naturally ripen against common Walls. But in some Parts of *England*, where most of our good Kinds of Fruit seldom ripen, it might be very well worth while to build some of these Walls, to obtain good Fruit from the best Kinds of Peaches, Plums, &c. especially in such Places where

where Fuel is plenty, because there the Expence will not be great after the first Building of the Walls. For I would not propose to have Coverings of Glafs, excepting for a small Proportion of the Walls; the rest may have Frames of Canvas, to shut over them, in the same manner as the Glasses are contriv'd; which will succeed very well, where proper Care is taken: for as there will not be Occasion to cover these Trees until the Latter-end of *February*, at which time also the Fires must be made; so, before the Trees are in Flower, the Weather may be frequently warm enough to open the Covers to admit Sun and Air to the Trees in the Middle of the Day; for if these Covers are kept too closely shut, the Shoots of the Trees will draw very weak, and their Leaves will turn pale, for want of Light and Air. And as the Design of these Contrivances is only to bring the Trees five, or, at most, six, Weeks earlier, than they would naturally come against common Walls, there will be no Necessity of making very large Fires, or keeping the Covers too closely over the Trees.

Instead of Canvas for these Covers, oiled Papers may be used; which should be done in the manner directed for raising of Melons, by pasting as many Sheets of Paper together, as will fit the Frames on which they are to be fix'd; and when the Paste is dry, the Paper should be fasten'd into the Frames, and then the Oil rubb'd over on the Outside with a Brush, which will soak thro' the Paper; and when the Paper is dry, the Covers may be used. This Paper will last very well one Season, and the Expence of repairing it will not be very great: wherefore these are to be preferr'd to the Canvas, because all Sorts of Plants will thrive

much better under them, than they will under Canvas, or any other close Covering, which will not admit the Light so well thro' to the Plants.

The Frames design'd for either Canvas or Paper, may be made much slihter than those for Glafs; because these, being very light, will not require much Strength to support them. And if these are well painted, and every Year, when their Use is over, carried into Shelter, they will last a long time; for they will not be wanted abroad longer than four Months; *viz.* from the End of *February* to the End of *May*; for after this time the Fruit will not require any Covering, the Trees being then full of Leaves; and the young Shoots will by that time have made such Progress, as to become a good Defence for the Fruit: but these Covers should not be too suddenly taken away; but by degrees the Trees should be enured to the open Air; otherwise the Change will be too great, and may occasion most of the Fruit to fall off, especially if cold Nights should follow.

By this Method Gentlemen may be supplied with most of the best Kinds of Fruit, in the Northern Parts of *England*; where, without some such Care, they can expect very little good Fruit in their Gardens. And as Coal is in great Plenty in those Places, the Expence will be very little; therefore I am surpris'd, that most of the Gentlemen who live in the North, do not put this Method in Practice. That there are some few of these Walls built in the North, is well known; but then they are chiefly design'd to produce a little early Fruit, more for Curiosity than any real Use: and these Walls are, for the most part, so ill contriv'd, that four times the Fuel is expended,

expended, as will be requisite when the Walls are built after the manner here directed : and where the Heat is not pretty equally distributed thro' every Part of the Wall, some of the Trees will have too much Heat, while others will have little Benefit from the Fires.

There are some Persons who build their Hot-walls in such a manner, as to have the greatest Heat under the Border, near to the Roots of their Trees, supposing there is a Necessity of Heat to the Roots, as well as the Branches : but this is a great Mistake; for the Fires, so situated, must greatly injure the Roots of the Trees, by drying up the Moisture of the Earth, as also in scorching the tender Fibres of those Roots which lie near them. Therefore this Practice should not be continued ; for it is much the better Method to elevate the first Flue nine Inches, or a Foot, above the Level of the Border, according as the Ground is dry or wet, than to place it the least below ground, which will only dry the Earth, and not warm the Air about the Trees, which is the only Use of artificial Heat : for it is very commonly practis'd to draw a Branch of a Vine, or other Fruit-tree, into a Stove; which Branch will produce its Fruit as early as if the whole Tree had been forc'd : when, at the same time, all the other Branches of the same Tree, which are expos'd to the open Air, will not be the least forwarded, tho' they are all nourish'd by the same Root : which is a plain Proof, that there is no Necessity of adding any Warmth to the Roots of Fruit-trees, to have their Fruit earlier or better ripen'd.

I have also heard of some Walls which have been built for Forcing of Fruit, with one continued Chasm from their Bottoms to the Tops ; so

that they have been like double Walls, with Places at proper Distances to make the Fires : but these can be of little Use ; for if the Vents are open at their Tops to let out the Smoke, the Heat will also escape with it ; because, if the Smoke be not led about three or four times in Flues, in order to warm the Bricks, the Heat will pass off at top, without doing much Service to the Trees.

Where the Walls are planted with the best Kinds of Fruit, which are design'd to ripen them in Perfection ; if the Autumns should prove cold, or very wet, before the Fruit are ripe, it will be proper to put the Covers over the Trees : and if there are some slow Fires made to dry off the Damps, it will be of great Use to prevent the Fruit from growing mouldy, and to hasten their Ripening. But when this is practis'd, the Covers should be taken off whenever the Weather will admit of it, that the Fruit may enjoy the Benefit of the free Air, without which they will be insipid or ill-tasted.

Although in the former Directions for forcing Trees, in order to have early Fruit, I have advis'd, that such Trees should have one or two Years Rest, in order to recover Vigour ; yet that is not to be understood of these Trees, which are only design'd to be brought forward enough to produce their Fruit in Perfection : for, as the Fires are not design'd to be made till the Middle or End of *February*, the Trees will not be so much weakened thereby ; because they will be enured to the open Air long before their Fruit is ripe, and will have time to ripen their Shoots, and form their Buds, for the next Year's Bearing : therefore these Trees may be thus forced every Year, without doing them any Injury, provided the Trees are carefully manag'd.

In Forcing of Fruit-trees, People generally hang up Thermometers under their Glasses, for the better adjusting the Heat, and regulating the Fires. But when this is practised, they should be hung where the Sun can never shine on them; for one Hour's Sunshine upon the Ball of the Thermometer, in the Spring of the Year, will so much rarefy the Spirits, that they will rise to the Top of the Tube; when, at the same time, the circumambient Air may not be much more than of a temperate Heat. But as the principal Use of these Thermometers is to regulate the Fires, they are seldom of much Use in the Day-time; because, if there be only one Hour's Sunshine in the Day on the Glasses, it will warm the Air sufficiently for the Production of *European* Fruits, without any additional Heat; wherefore there will rarely be any Occasion for continuing of the Fires in the Day: and if, by the Fires in the Night, the Air is warmed to the temperate Point mark'd on the Botanic Thermometers, the Fruit will thrive better than in a greater Heat.

There are some Persons near *London*, who make it their Business to produce early Fruit to supply the Markets; which they perform by the Heat of Dung only, having no Fire-walls in their Gardens. The Method which these People follow, is, to have good Quantity of new Dung laid in an Heap to warm (after the same manner as is practised for making of Hot-beds). When this Dung is in a proper Temperature of Heat, they lay it close on the Back-side of their Fruit-wall, about four Feet thick at the Bottom, and sloping to about ten Inches or a Foot thick at the Top. This Dung should be gently beat down

with a Fork, to prevent the Heat going off too soon; but it should not be trodden down too hard, lest that should prevent its Heating. The Outside of the Dung should be laid as smooth as possible, that the Wet may run off more easily; and if there is a Covering of Thatch, as is sometimes practis'd, it preserves the Dung from rotting too soon; whereby the Heat is continued the longer. The time for laying this Dung to the Back of the Wall, is the same as for making the Fires; *i. e.* about the Middle or End of *January*. The first Parcel of Dung will continue warm about a Month or five Weeks; when there should be a Supply of new Dung prepared, and the old taken quite away, or mixed up with this new Dung, to renew the Heat; which, if it works kindly, will be sufficient to last the Season. These Walls are cover'd with Glasses or Canvas, in the same manner as the Fire-walls; and the Trees must be treated the same way: but there must be more Care taken to open the Glasses against these Walls, whenever the Weather will permit; otherwise the Steams of the Dung will occasion a great Dampness through the Wall; which, if pent in about the Trees, will be very pernicious to them, especially at the time they are in Flower.

By this Method some Gardeners have forced long Walls filled with old well-grown Fruit-trees, which have produced great Quantities of Fruit annually; which has well answer'd their Expence. But as, in many Parts of *England*, it will be very difficult to procure a sufficient Quantity of new Dung for this Purpose, the Fire-walls are most useful, and least expensive.

I have seen in some Places long Timber-fences erected to force Fruit-trees

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trees, by laying new Dung against the Back-side, in the same manner as is practis'd for the Walls; but these are by no means proper, because the Steam of the Dung will easily get through every little Crack or Joint of the Boards, to the great Prejudice of the Trees: besides, these Boards will continue very damp, so long as any Moisture remains in the Dung, which will also be very injurious to them; and as these Boards will in a few Years decay, so these will be the most expensive, if they are kept in Repair for some Years, and will never answer the Design so well as Walls.

WALL-FLOWER. *Vide* Leucocium.

WALNUT. *Vide* Juglans.

WALTHERIA.

The Characters are;

It is a Plant of the malvaceous Tribe: the Empalement of the Flower is of one Leaf, slightly cut at the Brim into five Parts: the Flower is compos'd of five Leaves, which spread open: in the Centre is situated the oval Pointal, attended by five Stamina, which coalesce with the Style, so as to form one cylindrical Body: the Empalement incloses one Seed-vessel, which opens in two Valves, having one obtuse Seed.

The Species are;

1. WALTHERIA *foliis cordato-ovatis serratis*. Lin. Hort. Cliff. Waltheria with oval heart-shaped Leaves sawed on their Edges.

2. WALTHERIA *foliis lanceolatis serratis*. Flor. Leyd. Waltheria with spear-shap'd Leaves sawed on their Edges.

This Genus of Plants is describ'd in the French Memoirs of the Academy of Sciences by Monsr. D'Isnard, who has given it the Title of *Mono-spermalibæa*: from the Habit of the Plant being like *Aithæa*, but having

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a single Seed to each Flower, he compounded this Name: but Dr. Linnaeus has altered it to this of *Waltheria*, in Honour to Augustus Frederic Walther, Professor at Leipsic, who is a curious Botanist.

Both these Plants grow plentifully in most of the Islands in the *West-Indies*, from whence I have receiv'd their Seeds, which have succeeded very well; and the Plants perfect their Seeds annually, when they are plac'd in the Tan-bed in the warm Stove.

They grow shrubby, and rise to to the Height of six or eight Feet, sending out long lateral Branches, which are garnish'd with soft woolly Leaves, placed alternately. The Flowers are small, of a yellow Colour, and are many of them collect'd in an Head. These grow upon long Foot-stalks, which arise from the Wings of the Leaves. The Flowers are of short Duration, and make but an indifferent Appearance; so the Plants are seldom preserved, but in Botanic Gardens, for the sake of Variety.

These Plants are too tender to live in the open Air in *England*, not even in the Summer-season; nor do they thrive well, unless the Pots are plung'd in the Hot-bed of Tanners Bark: so that the Seeds must be sown on an Hot-bed, and when the Plants are fit to transplant, they must be each planted into a separate small Pot, and plung'd into a fresh Hot-bed; and afterward treated in the same manner, as other tender Plants of the same Country. The second Year the Plants will flower, and produce good Seeds; but they may be continued three or four Years, if the Plants are often shifted, and their Roots pared, to keep them within Compass; for if the Plants are permitted to remain long undisturbed in

in the Tan-bed, their Roots will run out through the Holes in the Bottom of the Pots, and extend to a great Distance in the Tan : and when this happens, if their Roots are torn, or cut off, the Plants seldom survive it. When the Plants root into the Tan, they grow very luxuriant, and cannot be kept within reasonable Compass; but on their Roots being disturb'd, their Branches will hang, and their Leaves shrivel up, and drop off. Therefore, to keep these Plants within Bounds, they should be drawn up out of the Tan, at least once in three Weeks, during the Summer-Season ; and the Plants shifted out of the Pots once in two Months : with this Management they may be continued several Years.

WATER is one of the most considerable Requisites belonging to a Garden : if a Garden be without it, it brings a certain Mortality upon whatsoever is planted. By Waterings the great Droughts in Summer are allay'd, which would infallibly burn up most Plants, had we not the Help of Water to qualify the excessive Heats ; besides, as to noble Seats, the Beauty which Water will add to them in making *Jets d'Eau*, Canals, and Cascades : therefore they are some of the noblest Ornaments of a Garden.

WILDERNESSES, if rightly situated, artfully contrived, and judiciously planted, are very great Ornaments to a fine Garden ; but it is rare to see these so well executed in Gardens as could be wish'd, nor is it often they are judiciously situated: for either they are so situated as to hinder a distant Prospect, or else are not judiciously planted : the latter of which is scarce ever to be found in any of our most magnificent Gardens, very few of their Designers ever studying the natural Growth of

Plants, so as to place them in such manner, that they may not obstruct the Sight from the several Parts of the Plantation which are presented to the View : I shall therefore briefly set down what has occurred to me from time to time, when I have consider'd these Parts of Gardens; whereby a Person will be capable to form an Idea of the true Beauties, which ought always to be studied in the Contrivance of Wilderesses.

1. Wilderesses should always be proportion'd to the Extent of the Gardens in which they are made, that they may correspond in Magnitude with the other Parts of the Garden ; for it is very ridiculous to see a large Wilderness planted with tall Trees in a small Spot of Ground ; and, on the other hand, nothing can be more absurd, than to see little paltry Squares or Quarters of Wilderness-work, in a magnificent large Garden.

2. As to the Situation of Wilderesses, they should never be placed too near the Habitation ; because the great Quantity of Moisture which is perspired from the Trees, will cause a damp unwholesome Air about the House, which is often of ill Consequence : nor should they be situated so as to obstruct any distant Prospect of the Country; which should always be preserved wherever it can be obtained ; there being nothing so agreeable to the Mind as an unconfined Prospect of the adjacent Country. But where the Sight is confined within the Limits of the Garden from its Situation, then there is nothing so agreeable to terminate the Prospect, as a beautiful Scene of the various Kinds of Trees judiciously planted ; and if it is so contrived, that the Termination is planted circularly, with the Concave toward the Sight, it will have a much better Effect, than

if it end in strait Lines or Angles, which are never so agreeable to the Mind.

3. The Plants should always be adapted to the Size of the Plantation; for 'tis very absurd to see tall Trees planted in small Squares of a little Garden; and so likewise, if in large Designs are planted nothing but small Shrubs, it will have a mean Appearance. It should also be observed, never to plant Ever-greens amongst deciduous Trees; unless it be toward the Front or Borders of the Plantation chiefly in Sight; because these afford a continual Pleasure both in Summer and Winter, when in the latter Season the deciduous Trees do not appear so agreeable: therefore, if the Borders of Wilderness-quarters are skirted with Ever-green, they will have a good Effect.

4. The Walks must also be proportion'd to the Size of the Ground, and not make large Walks in a small Wilderness (nor too many Walks, though smaller), whereby the greatest Part of the Ground is employ'd in Walks: nor should the grand Walks of a large Wilderness be too small, both of which are equally faulty. These Walks should not be enter'd immediately from those of the Pleasure-garden; but rather be led into by a small private Walk, which will render it more entertaining: or if the large Walk be turned in Form of a Serpent, so as not to shew its whole Extent, the Mind will be better pleas'd, than if the Whole were open to the View.

The usual Method of contriving Wildernesses is, to divide the whole Compass of Ground, either into Squares, Angles, Circle, or other Figures, making the Walks correspondent to them; planting the Sides of the Walks with Hedges of Lime,

Elm, Hornbeam, &c. and the Quarters within are planted with various Kinds of Trees promiscuously without Order. But this can by no means be esteemed a judicious Method; because hereby there will be a great Expence in keeping the Hedges of a large Wilderness in good Order, which, instead of being beautiful, are rather the reverse; for as these Parts of a Garden should, in a great measure, be design'd from Nature, so whatever has the stiff Appearance of Art does by no means correspond therewith. Besides, these Hedges are generally trained up so high, as to obstruct the Sight from the Trees in the Quarters, which ought never to be done.

In the next place, the Walks are commonly made to intersect each other in Angles; which also shews too formal and trite for such Plantations, and are by no means comparable to such Walks as have the Appearance of Meanders or Labyrinths, where the Eye cannot discover more than twenty or thirty Yards in Length; and the more these Walks are turn'd, the greater Pleasure they will afford. These should now and then lead into an open circular Piece of Grass; in the Centre of which may be plac'd either an Obelisk, Statue, or Fountain; and if in the middle Part of the Wildernesses there be contrived a large Opening, in the Centre of which may be erected a Dome or Banqueting-house, surrounded with a green Plot of Grass, it will be a considerable Addition to the Beauty of the Place.

From the Sides of the Walks and Openings, the Trees should rise gradually one above another to the Middle of the Quarters, where should always be planted the largest growing Trees, so that the Heads of all the Trees will appear to the View; but

but their Stems will be hid from Sight, which will have a vastly different Effect from the common Method, where the Trees are planted large and small without any Order; so that many times the largest are next the Sight, and small ones behind them, just according as it happens; in which manner the small ones, being overhung and shaded, seldom thrive well.

But in order to plant a Wilderness with Judgment, the usual Growth of all the different Sorts of Trees should be well consider'd, that each may be placed according to the Magnitude to which they generally grow; otherwise, if they are at first planted one above another, as before directed, they will not continue to grow in this Order many Years; for some Sorts will greatly outgrow the others, and thereby render the Plantation less beautiful; but when they are placed according to their usual manner of growing, they will always continue nearly in the same Order, which renders them very entertaining to the Sight.

These Trees should also be allowed a proportionable Distance, according to their Growth, and not be crowded so close as is commonly practised, whereby there are four times the Number of Trees planted which need be: and this close Planting causes them to aspire to a great Height; but then they want the noble Diffusion of Branches, which is vastly more agreeable to the Sight, than a Parcel of thin, taper Stems, with scarcely any Heads, as is too often the Case in some of the largest Gardens in *England*, where, instead of looking at a noble Parabola of Trees, with their spreading globular Heads, a Parcel of naked Stems present themselves to View: and where the Trees are thus crowd-

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ed, they never thrive half so well; nor will they continue half so long, as those which are allowed a proper Distance; for their Roots, running and interfering with each other, draw the Nourishment away faster than the Ground can supply them; which causes their Leaves to be small, and, in dry Seasons, to decay, and fall off, long before their usual time; and thereby renders the Plantation less agreeable.

In the Distribution of these Plantations, in those Parts which are planted with deciduous Trees, may be planted next the Walks and Openings, *Roses*, *Honeysuckles*, *Spiræa Frutex*, and other Kinds of low-flowering Shrubs, which may be always kept very dwarf, and may be planted pretty close together; and at the Foot of them, near the Sides of the Walks, may be planted *Primroses*, *Violets*, *Daffodils*, and many other Sorts of Wood flowers; not in a strait Line, but rather to appear accidental, as in a natural Wood. Behind the first Row of Shrubs should be planted *Syringas*, *Cytisus's*, *Althæa Frutex*, *Mezerions*, and other flowering Shrubs of a middle Growth; which may be back'd with *Laburnums*, *Lilacs*, *Gelder-roses*, and other flowering Shrubs of large Growth: these may be back'd with many other Sorts of Trees, rising gradually to the Middle of the Quarters, from whence they should always slope down every Way to the Walks.

By this Distribution you will have the Pleasure of the flowering Shrubs near the Sight, whereby you will be regaled with their Scent, as you pass through the Walks; which is seldom observed by those who plant Wildernesses; for nothing is more common than to see *Roses*, *Honeysuckles*, and other small flowering Shrubs,

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Shrubs, placed in the Middle of large Quarters, under the Dropping and Shade of large Trees, where they seldom thrive; and if they do, the Pleasure of them is lost, because they are secluded from the Sight. If these Quarters are slightly dug every Winter, it will keep the Ground clean from noxious Weeds, and be a great Benefit to the Trees. And the Expence of doing this, where Labour is cheap, cannot be very considerable, unless in very great Plantations.

But, beside these grand Walks and Openings (which should always be laid with Turf, and kept well mowed), there should be some smaller Serpentine-walks through the Middle of the Quarters, where Persons may retire for Privacy. There need be nothing but the Ground of the Place made level, and kept hoed, to clear it from Weeds, which will be no great Trouble to do with a *Dutch Hoe*; which is broad, and will make great Riddance; and then rake them over to make them handsome. These Walks need not be very broad; but should be turned in such a manner, as not to deviate far from the Middle of the Quarter; because there the Trees being largest, will afford the amplest Shade; six or seven Feet will be a sufficient Width for these Walks, in large Quarters; but in small ones, four Feet is full enough. By the Sides of these private Walks may also be scattered some Wood-flowers and Plants, which, if artfully planted, will have a very good Effect.

In the general Design for these Wildernesses, it should not be studied to make the several Parts correspondent; for that is so formal and stiff, as to be now quite rejected: the greater Diversity there is in the Distribution of these Parts, the more

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Pleasure they will afford: and since, according to this Method of Designing and Planting, the different Parts never present themselves to the same Views, it is no matter how different they are varied asunder; that Part of them which is most in View from the House, or other Parts of the Garden, may be planted with Evergreens; but the other Parts may be planted with deciduous Trees in the foregoing manner.

The Part planted with Evergreens may be disposed in the following manner; viz. in the first Line, next the great Walks, may be placed *Laurus-tinus*, Boxes, Spurge-laurel, Juniper, Savin, and other dwarf Evergreens. Behind these may be placed Laurels, Hollies, Arbutus's, and other Ever-greens of a larger Growth. Next to these may be placed *Alaternus's*, *Phyllirea's*, Yews, Cypresses, *Virginian Cedars*, and other Trees of the same Growth; behind these may be planted *Norway* and Silver Firs, the True Pine, and other Sorts of the like Growth; and in the Middle should be planted *Scotch Pines*, *Pinaster*, and other of the largest-growing Evergreens, which will afford a most delightful Prospect, if the different Shades of their Greens are curiously intermixed. And in order to render the Variety greater, there may be many Kinds of hardy Ever-greens obtain'd from the North Parts of *America*; as there are already some in *England*, which are very fit for this Purpose, and are mention'd in different Parts of this Book.

This manner of separating the Ever-greens from the deciduous Trees will not only make a much better Appearance, but also cause them to thrive far beyond what they usually do when intermix'd; therefore

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fore I should never advise any Person to plant them promiscuously together.

By what I have said concerning the Planting of the Trees in Rows, one behind another, according to their different Growths, I would not have it understood, that I mean the placing them in strait Lines, which is too stiff and formal for these Plantations: all that is intended is, to place the front Rows of Trees on each Side the Walks, at an equal Distance from the Side of the Walks; so that the Lines of Trees (especially the three first) will turn in the same manner as the Walks. Those behind may be placed after the same manner, provided Care be taken to allow each sufficient room to grow, and that there may appear no uneven Gaps in the Distance of their Heads; but that they may all rise gradually, so as to form an handsome Slope.

In small Gardens, where there is not room for these magnificent Wilderesses, there may be some rising Clumps of Ever-greens, so designed as to make the Ground appear much larger than it is in Reality; and if in these there are some Serpentine-walks well contriv'd, it will greatly improve the Places, and deceive those who are unacquainted with the Ground, as to its Size. These Clumps or little Quarters of Ever-greens should be placed just beyond the plain Opening of Grass before the House, where the Eye will be carried from the plain Surface of Grass, to the regular Slope of Ever-greens, to the great Pleasure of the Beholder; but if there is a distant Prospect of the adjacent Country from the House, then this should not be obstructed, but rather a larger Opening allowed for the View, bounded on each Side with these rising Clumps, which may be ex-

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tended to half the Compass of the Ground: and on the back Part from the Sight, may be planted the several Kinds of flowering Shrubs, according to their different Growths, which will still add to the Variety. These small Quarters should not be surrounded with Hedges, for the Reasons before given for the larger Plantations; nor should they be cut into Angles, or any other studied Figures, but be designed rather in a rural manner; which is always preferable to the other, for these Kinds of Plantations.

In Wilderesses there is but little Trouble or Expence after their first planting, which is an Addition to their Value: the only Labour required, is to mow and roll the large Grass-walks, and to keep the other Ground-walks free from Weeds. And in the Quarters, if the Weeds are hoed down two or three times in a Summer, it will still add to their Neatness. The Trees should also be pruned to cut out all dead Wood, or irregular Branches, where they cross each other, and just to preserve them within due Bounds; and, as was before observ'd, if the Ground be slightly dug between the Trees, it will greatly promote their Vigour. This being the whole Labour of a Wilderess, 'tis no Wonder they are so generally esteem'd, especially when we consider the Pleasure they afford.

SWEET WILLIAMS. *Vide* Caryophyllus Barbatus.

WILLOW. *Vide* Salix.

WILLOW, the French. *Vide* Epilobium.

WINE.

Having given Directions for planting and managing of Vineyards in England, under the Article *Vitis*; it will be necessary under this Article, to give some Directions for the

making of Wines; in doing of which, I shall briefly insert what has been found the most beneficial Method, of any yet practised in this Country: for as our Climate wants the Assistance of the Sun, to ripen the Grapes properly for this Purpose; so the Practice of the *Vignerons* abroad will be found very deficient in *England*; tho' there are many things practised by those of *France*, which are very worthy of the Notice of those who are desirous to make Wine in *England*.

I have before mention'd, that young Vines never produce so good Wine as those which are twenty or thirty Years old; so that it cannot be expected, that those Vineyards which are so young, as those which have been planted lately in *England*, should produce so good Wine, as they might do when grown to a greater Age; and especially those which have been planted upon rich Garden-ground near *London*, where they have generally been situated on a flat level Ground, and frequently in low moist Land. Under these Disadvantages, together with a Want of Skill, not only in the Planting and Management of the Vines, but also in the Method of making the Wine; in which last, most of those who have attempted to make Wine in *England*, have been extremely ignorant; therefore, from their Success, there cannot be any tolerable Judgment formed of the Practicability of this Scheme. Indeed, the Seasons of late have not been very favourable to this Project; but one or two cold Years should not discourage People from attempting this; since it is often the Case in those Countries where the Wines of highest Price are made: for the Summers there are often cold and moist; so that

the Grapes do not arrive to a proper Maturity: in which Case the *Vignerons* have recourse to Art, to assist and help their Vines, in the time of their Vintage; and it has been chiefly owing to the Want of this Skill, that the Wines made in *England* have failed.

In those Countries where there is not Heat enough to ripen the Grapes perfectly well, or in bad Seasons, when the Grapes do not come to Maturity, the Juice is always watry and poor, therefore greatly dispos'd to Fermentation; and where there is not Art used to stop the Fermentation at a proper time, the Wine will turn eager; after which it is impossible to retrieve it, so as to render it good: altho' by mixing and brewing of this weak eager Wine with some of the strong foreign Wines, there may be a Liquor compounded for Sale, yet this can never be so pure, or wholesome, as a Wine which is made without such Art: yet that this has been practis'd by some of the Dealers in Wine, has been positively affirmed by the Persons who have sold them the *English* Juice; so that, in some Years, there has been a great Quantity of the Juice of *English* Grapes sold, which has been used in the brewing and mixing of Wine for Sale, by those who have Art enough to render it palatable. Therefore, if the Produce of the *English* Vineyards can, by being help'd with the Wines of other Countries, be render'd drinkable; if a Method can be found to answer this, by properly managing the *English* Juice, at the time of making the Wine; so as to add Strength to it, and prevent its turning eager by Fermentation; this Wine will be much better for keeping, and a wholesomer Liquor for drinking,

drinking, than any which is so mixed and compounded; therefore it is worthy of the Attention of every Person, who is desirous of Success in the Propagation and Improvement of *English* Vineyards.

The first thing to be observ'd in the making of Wine in *England* (after the Grapes are as ripe as the Season will admit) is that of gathering the Grapes in the middle of the Day, and in dry Weather, that they may have no external Moisture on them; as also to be careful not to mix unripe Grapes with those which are ripe; so that it will be the best Method, to gather only such as are the ripest first, and make good Wine of these, leaving those which are less ripe for another Gathering, which may make a Wine of less Value; rather than by endeavouring to increase the Quantity, by mixing the Whole together, and thereby render the Quality of it less delicate: and then the Grapes should be pick'd off the Stalks; in the doing of which, all unripe Grapes, or such as are rotten, should be rejected; putting only such into the Vat, as are sound and ripe. When the Juice is press'd out, before any Fermentation is begun, Part of the Juice should be put into one or two large Coppers (in proportion to the Quantity of Wine intended to be made); and this Juice should be boiled until it is brought to the Consistence of Honey: and this should be added to the fermenting Juice left in the Vat; which will prevent it from fermenting too strongly, so as to turn eager; and will give such a Body to the Wine, as to render it fit for keeping, and make it a pleasant wholesome Liquor; for by this boiling of the Juice before Fermentation, the Water only is evaporated, and the Spirit is preserv'd; so

that by diminishing the Quantity, the Quality of the Wine is greatly improv'd: this has been practised by an ingenious Person, who made the best Wine from the Juice of *English* Grapes, without any other Art or Mixture, than has been done by any other Person: in his first Trial he boiled all the Juice, but not to the Consistence before-mention'd, only for a short time to evaporate Part of the Water; but in this he did not succeed so well, as in the former way, the Juice not fermenting so well: however, that might be owing to the want of Heat in the Room, where the Wine was making; for if the Weather proves cold at the time of Vintage, there should be Stoves contriv'd to warm the Air of the Room; which will be of great Use in promoting the Fermentation of the Wine.

In proportion to the Goodness of the Grapes, the Juice should be more or less boiled; as also, according as the Wine may be desired more or less strong; for by boiling it to evaporate a greater Quantity of the Water, the remaining Juice will be the stronger and richer; as we find by the rich Wines of *Greece*; as also the Malmsey, and other rich sweet Wines, which are all boiled before Fermentation; and these boiled Wines rarely ever alter; so that the longer they are kept, the better they grow: and as this is the Practice of those Countries where there is sufficient Heat for ripening of the Grapes, so in those Countries where there is a Want of Sun, there is a greater Necessity for making use of this Help; and every Person of tolerable Judgment will, by a few Trials, be enabled to know, to a Certainty, the Length of Time which will be proper to boil the Juice, so as

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to render the Wine perfectly good.

If at the time when the Wine is fermenting, the Weather should prove cold, it will be necessary to exclude the outer Air from the Room; and also to make gentle Fires to prevent the cold Air from stopping the Fermentation, which is the Practice of the *Vignerons* upon the *Rhine*; whose Practice we should imitate, since their Climate approaches the nearest to ours, of any Wine Country.

But when the Wines have properly fermented, it requires Skill to know how to stop the Fermentation; for the *English* Wines do frequently ferment too much, whereby they become acid and poor: indeed by this Method of boiling a third Part of the Juice to the Consistence before-mention'd, this is generally prevented. But if there should be any Danger of their fermenting too violently, it may not be improper to add a small Quantity of highly rectified Spirits, drawn from the Lees of the Wine, which is generally practised by the most skilful *Vignerons* abroad.

The Method of judging when Wine has fermented its proper time, is chiefly by the Taste; but it depends in a great measure on the Person who directs this Affair having a good Palate, to know when the Wine is in Perfection; for in hot dry Years it will require a much greater Fermentation, and to be continued longer, than in moist cool Seasons; and some particular Sorts of Grapes will take a longer time to ferment than others; so that it is by no means adviseable to mix different Sorts of Grapes together in the Press, because there are not any two Sorts but will require a different Degree of Fermentation; which will occasion

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the Wine to be always on the Fret.

When the greatest Fermentation is over, the Wine should be drawn off into fresh Casks, which must be filled within a very little of the Top; but the Bung-hole should be left open three Weeks, or a Month, to give Vent to the generated Air; and as the Wine subsides in the Casks, so they should be carefully refilled with Wine of the same Sort from a Store-cask, which should be provided for that Purpose; but this must be done with much Care, lest by hastily refilling the Casks, the Scum which is naturally produc'd upon all new Wines, should be broken thereby, which will mix with the Wine, and foul it, causing it to take an ill Taste; therefore it would be proper to have a Funnel, which should have a Plate at the small End, bored full of little Holes, like the Nossel of a Water-pot, that the Wine may pass through in small Drops, which will prevent its breaking of the Scum.

After the Wine has remained in this State a Month or six Weeks, it will be necessary to stop up the Bung-hole, lest by exposing it too much to the Air, the Wine should grow flat, and lose much of its Spirit and Strength; but it must not be quite stopped up, but rather should have a Pewter or Tin-tube, of about half an Inch Bore, and two Feet long, placed in the Middle of the Bung-hole. The Use of this Tube is to let the Air, which is generated by the Fermentation of the Wine, pass off, because this, being of a rancid Nature, would spoil the Wine, if it were pent up in the Cask; and in this Tube there may always remain some Wine, to keep the Cask full, as the Wine shall subside; and, as it shall be necessary, the Wine in

the Tube may be easily replenished. For want of rightly understanding this Affair, a great Quantity of the choicest Wines of *Italy*, and other Countries, have been lost. A great Complaint of this Misfortune I received from a very curious Gentleman in *Italy*, who says; "Such is the Nature of this Country Wines in general (nor are the choicest *Chianti's* excepted), that at two Seasons of the Year, *viz.* the Beginning of *June* and *September*, the first when the Grapes are in Flower, and the other when they begin to ripen, some of the best Wines are apt to change (especially at the latter Season); not that they turn eager, but take a most unpleasant Taste, like that of a rotten Vine-leaf, which renders them not only unfit for drinking, but also to make Vinegar of; and is called the *Settembrine*. And what is most strange is, that one Cask, drawn out of the same Vat, shall be infected, and another remain perfectly good, and yet both have been kept in the same Cellar.

"As this Change happens not to Wine in Flasks (though that will turn eager), I am apt to attribute it to some Fault in refilling the Cask, which must always be kept full; which, either by letting alone too long, till the Decrease be too great, and the Scum there naturally is on all Wines thereby being too much dilated, is subject to break; or else, being broken by refilling the Cask, gives it that vile Taste. But against this there is a very strong Objection; *i. e.* that this Defect seizes the Wine only at a particular Season; *viz.* *September*; over which if it gets, it will keep good many Years. So that the Case is worthy the Inquiry of Naturalists, since it is

"evident, that most Wines are more or less affected with this Distemper, during the first Year after making."

Upon receiving this Information from *Italy*, I consulted the Reverend Dr. Hales of *Teddington*, who was then making many Experiments on fermenting Liquors; and received from him the following curious Solution of the Cause of this Change in Wine, which I sent over to my Friend in *Italy*, who has tried the Experiment; and it has accordingly answered his Expectation, in preserving the Wine, which was thus managed, perfectly good: he has also communicated the Experiment to several *Vignerons* in different Parts of *Italy*, who are repeating the same: which take in Dr. Hales's Words.

"From many Experiments which I made the last Summer, I find that all fermented Liquors do generate Air in large Quantities, during the time of their Fermentation; for, from an Experiment made on twelve Cubic Inches of *Malaga Raisins*, put into eighteen Cubic Inches of Water the Beginning of *March*, there were 411 Cubic Inches of Air generated by the Middle of *April*; but afterwards, when the Fermentation was over, it resorbed a great Quantity of this Air. And from forty-two Cubic Inches of Ale from the Tun (which had fermented thirty-four Hours before it was put into the Bolt-head) had generated 639 Cubic Inches of Air, from the Beginning of *March* to the Middle of *June*, after which it resorbed thirty-two Cubic Inches of Air: from whence it is plain, that fermented Liquors do generate Air, during the time of their Fermentation; but after-

wards they are in an imbibing State, which may, perhaps, account for the Alteration of the nice *Italian Wines*; for Wine, during the first Year after making, continues fermenting more or less, during which time a great Quantity of Air is generated, until the Cold in *September* put a Stop to it; after which it is in an imbibing State. For the Air thus generated is of a rancid Nature (as the *Grotto del Cano*), and will kill a living Animal, if put into it. So that if, during the Fermentation of the Wine, there are two Quarts of this rancid Air generated, which is closely pent up in the upper Part of the Vessel, when the Cold should stop the Fermentation, the Wine, by absorbing this Air, becomes foul, and acquires this rancid Taste; to prevent which, I would propose the following Experiment:



Suppose the Vessel A filled with Wine; in the Bung-hole of this Vessel b, I would have a Glass Tube of two Feet long, and about two Inches Bore, fixed with a Pewter Socket closely cemented, so as that there may be no Vacuities on the Sides; and into this Tube should be another, of about half an Inch Bore, closely fixed; the lower Tube should always be kept about half full of Wine, up to X, which will supply the Vessel, as the Wine therein shall subside, so that there will be no room left in the upper Part of the Vessel to contain generated Air, which will pass off through the upper small Tube, which must be always left open for this Purpose; and the Tube being small, there will be

no Danger of letting in too much Air to the Wine.

As the Wine in the lower Tube shall subside, it may be re-filled by introducing a slender Funnel thro' the small Tube, down to the Scum upon the Surface of the Wine in the larger Tube, so as to prevent its being broken by the Wine falling too violently upon it. This Experiment being tried with Glass Tubes, will give an Opportunity to observe what Impression the different States of the Air have upon the Wine, by its rising or falling in the Tubes; and if it succeeds, it may be afterwards done by wooden or metal Tubes, which will not be in Danger of breaking."

This curious Experiment, having succeeded where-ever it has yet been tried, will be of great Service in the Management of Wines, there being many useful Hints to be taken from it, particularly with regard to fermenting Wines; for since we find, that Wines too long fermented (especially those which are produced in cool Countries) do seldom keep well; so, by letting them stand in a cool Place, the Fermentation will be checked, which will render the Wine foul, and subject to turn eager: therefore great care should be taken to keep the Wine in an equal Temperature of Air; which may be known by hanging a Thermometer in the Vault.

But after the Wine has passed its Fermentation in the Vat, and is drawn off into the Casks, it will require something to feed upon; so that you should always preserve a few Bunches of the best Grapes, which may be hung up in a Room for that Purpose, until there be Occasion for them, when they should be picked off the Stalks, and two or three

three good Handfuls put into each Cask, according to their several Sizes: for want of this, many times People make use of other things, which are by no means so proper for this Purpose.

When the Wine has remained one Year upon the Lees, it is commonly drawn off into other Vessels; but when this is done, it may not be improper to add a Quantity of dried Grapes, or Raisins of the Sun, sufficient for the Wine to feed upon; but great Care must be had, that the Quantity is not so great, as to raise a new Fermentation in the Wine, which will endanger its turning acid. About six or seven Pounds of these, clean picked from Stalks, will be sufficient for one Hoghead of Wine, and more may be prejudicial.

As the Wine will subside in the Vessels during its Continuance therein; so it is the usual Method, to re-fill the Vessels from time to time with some Wine, as nearly like the Sort as possible; for if it is of a different Nature from that in the Vessels, or much newer, it will often excite a Fermentation, which will prove hurtful to the Wine: therefore, when there is wanting a Supply of proper Wine, it will be a good Method to fill up the Vessel with small Pebbles cleanly washed, which is what I have known practised with Success.

WOODS and Groves are the greatest Ornaments to a Country-seat; therefore every Seat is greatly defective without them; Wood and Water being absolutely necessary to render a Place agreeable and pleasant. Where there are Woods already grown to a large Size, so situated as to be taken into the Garden, or so nearly adjoining, as that an easy Communication may be made from the Garden to the Wood; they

may be so contrived by cutting o winding Walks thro' them, as to render them the most delightful and pleasant Parts of a Seat (especially in the Heat of Summer), when those Walks afford a goodly Shade from the scorching Heat of the Sun.

As I have already treated of the Use and Beauty of Wilderesses, and have given Directions for the making and planting of them; I shall not enlarge much upon that Head in this Place: therefore I shall only give some short Instructions for the cutting and making of these Woodwalks in those Places where Persons are so happy as to have any grown Woods, so situated as to be near the Habitation, and are either taken into the Garden, or Walks made from the House or Garden, leading to them; as also how to plant and decorate the Sides of these Walks with Shrubs and Flowers, so as to render them agreeable and pleasant.

Where Persons have the Convenience of grown Woods near the Habitation, so as that there may be an easy Communication from one to the other, there will be little Occasion for Wilderesses in the Garden; since the natural Woods may be so contriv'd, as to render them much pleasanter than any new Plantation can possibly arrive to within the Compass of twenty Years, where the Trees make the greatest Progress in their Growth; and in such Places where their Growth is slow, there cannot be expected Shade equal to the grown Woods, in double that Number of Years: but there is not only the Pleasure of enjoying a present Shade from these Woods, but also a great Expence saved in the planting of Wilderesses; which, if they are large, and the Trees to be purchas'd, will amount to no small Sum.

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If the Wood is so situated, as that the Garden may be contriv'd between the House and that, then the Walk into the Wood should be made as near to the House as possible; that there may not be too much open Space to walk thro' in order to get into the Shade: if the Wood is of small Extent, then there will be a Necessity of twisting of the Walks pretty much, so as to make as much Walking as the Compass of Ground will admit; but there should be Care taken not to bring the Turns so near each other, as that the two Walks may be exposed to each other, for want of a sufficient Thickness of Wood between; but where the Wood is large, the Twists of the Walks should not approach nearer to each other than sixty or eight Feet; or in very large Woods double that Distance will be yet better; because, when the Under-wood is cut down, which will be absolutely necessary every tenth or twelfth Year, according to its Growth, then the Walks will be quite open, until the Under-wood grows up again, unless a Border of Shrubs, intermix'd with some Ever-greens, is planted by the Sides of the Walks; which is what I would recommend, as this will greatly add to the Pleasure of these Walks.

These Wood-walks should not be less than eight or nine Feet broad in small Woods; but in large ones fifteen Feet will not be too much: and on each Side of the Walks, the Border of Shrubs and Ever-greens may be nine or ten Feet broad; which may be so manag'd, as to shut out the View from one Part of the Walk to the other, at those times when the Under-wood is cut down; at which times there will be an absolute Occasion for such Plantations; and at all times they will afford

great Pleasure, by adding to the Variety, as also by their fragrant Odour.

The former Method which was practis'd in cutting of these Walks thro' Woods, was, to have them strait as possible; so that there was much Trouble to make Sight thro' the Woods, for Direction how to cut them; but where this was practis'd, every Tree which stood in the Line, good and bad, was cut down; and many times boggy or bad Ground was taken into the Walks; so that an Expence of Draining and Levelling was necessary to render them proper for walking on: besides this, there were many other Inconveniencies attending these strait Cuts thro' Woods; as, first, by letting in a great Draught of Air, which in windy Weather renders the Walks unpleasant; and then these Cuts will appear at a great Distance from the Woods, which will have a very bad Effect: therefore the modern Practice of twisting the Walks thro' Woods is to be preferr'd. In the cutting of these Walks, there should be particular Care taken to lead them over the smoothest and soundest Part of the Ground; as also to avoid cutting down the good Trees; so that whenever these stand in the Way, it will be better to lead the Walk on one Side, than to have the Tree stand in the middle: for altho' some Persons may contend for the Beauty of such Trees which are left standing in Walks; yet it must be allow'd, that unless the Walk is made much broader in those Places than in the other, the Trees will occasion Obstructions to the Walkers, especially when two or three Persons are walking together: so that it will be much better to have the Walks intirely clear from Trees; and where any large-spread-

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ing Tree stands near the Walk, to cut away the small Wood, so as to make an Opening round the Trees, where there may be some Seats plac'd, for Persons to rest under the Shade: the Turns made in these Walks should be as natural as possible; nor should there be too many of them, for that will render the Walking thro' them disagreeable; therefore the great Skill in making of these Walks is, to make the Turns so easy as not to appear like a Work of Art, nor to extend them strait to so great Length, as that Persons who may be walking at a great Distance, may be exposed to the Sight of each other: both these Extremes should be avoided as much as possible, since they are equally disagreeable to Persons of true Taste. When a Wood is properly manag'd in this Way, and a few Places properly left like an open Grove, where there are some large Trees so situated as to form them, there can be no greater Ornament to a fine Seat, than such a Wood.



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XERANTHEMUM, Eternal Flower, or Ptarmica, *vulgo.*

The Characters are;

It hath a scaly silver-colour'd permanent Empalement: the Flower is dry; the Disk consisting of many plain Petals, having no Embryoes affixed to them; yet are included in the same Empalement with the Florets, which rest on the Embryoes, which afterwards become Seeds, each bearing a leafy Head.

The Species are;

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1. *XERANTHEMUM flore simplici purpureo majore. H. L.* Eternal Flower, or Ptarmica, with a large single purple Flower.

2. *XERANTHEMUM flore pleno purpureo majore. H. L.* Eternal Flower, or Ptarmica, with a large double purple Flower.

3. *XERANTHEMUM flore simplici albo. H. L.* Eternal Flower, or Ptarmica, with a single white Flower.

4. *XERANTHEMUM flore pleno albo. H. L.* Eternal Flower, or Ptarmica, with a double white Flower.

5. *XERANTHEMUM flore simplici purpureo minore. Tourn.* Eternal Flower, or Ptarmica, with a lesser single purple Flower.

6. *XERANTHEMUM flore purpureo simplici minimo, semine maximo. H. L.* Eternal Flower, or Ptarmica, with a very small single purple Flower, and a large Seed.

These Flowers were formerly much more cultivated in the *English* Gardens than at present; especially the two Sorts with double Flowers; which the Gardeners near *London* did cultivate in great Plenty for their Flowers, which they brought to Market in the Winter-season, to set in Glasses in Rooms, to supply the Place of other Flowers, which are not easy to be procur'd at that Season; for these, being gather'd when they are fully blown, and carefully dry'd, will continue fresh and beautiful many Months; but as there are no other Colours in these Flowers but White and Purple, the Gardeners had a Method of dipping them into various Tinctures, so as to have some of a fine Blue, others Scarlet, and some Red, which made a pretty Variety; and, if they were rightly stain'd, and afterwards hung up till they were thorough-dry, they would
continue

continue their Colours as long as the Flowers endured.

All these Sorts are propagated by Seeds, which should be sown in a warm Border in *August*; observing to water and shade the Ground, if the Season proves warm and dry, until the Plants are come up; after which they must be kept clean from Weeds, and, in dry Weather, should be now-and-then refresh'd with Water. When the Plants are about two Inches high, they should be prick'd out into another Border under a warm Wall, Pale, or Hedge, at about four or five Inches Distance from each other. In this Place the Plants will endure the Cold of our ordinary Winters extremely well; and in the Spring will require no farther Care, but to keep them clear from Weeds; for they may remain in the same Place for good. In *June* they will begin to flower, and the Beginning of *July* they will be fit to gather for drying: but a few of the best and most double Flowers of each Kind should be suffer'd to remain for Seed; which, in about two Months time, will be ripe, and the Plants will perish soon after; so that the Seeds must be annually sown, in order to preserve them.

The Seeds of these Plants are many times sown in the Spring; but they seldom grow so well at that Season; nor will the Plants grow near so large, or produce near the same Quantity of Flowers, as those which are sown in Autumn: for which Reasons, that time should be prefer'd. Besides, it often happens, that the Plants which come up of the Spring-sowing, rarely produce good Seeds, unless the Season prove very favourable.

XIPHION, Bulbous Iris, or Flower-de-luce.

The Characters are;

It hath a Lily-flower, consisting of one Leaf, and shaped exactly like that of the common Iris: the Pointal is furnished with three Leaves; but the Empalement turns to a Fruit shaped like that of the common Iris: the Root is bulbous, or consists of many Coats, in which it differs from the Iris.

The Species are;

1. XIPHION *Persicum præcox, flore variegato. Tourn.* Early Persian bulbous Flower-de-luce, with a variegated Flower.

2. XIPHION *angustifolium, flore albo, labio inferiori rectus aureo. Boerb. Ind.* Narrow-leav'd bulbous Iris, with a white Flower, and the lower Part of the Lip of a yellow Colour.

3. XIPHION *angustifolium, cœruleo-violaceum, non odorum. Boerb. Ind.* Common narrow-leav'd bulbous Iris, with a blue violet-colour'd Flower, without Scent.

4. XIPHION *angustifolium, flore luteo inodoro. Tourn.* Narrow-leav'd bulbous Iris, with a yellow Flower, without Scent.

5. XIPHION *angustifolium, flore ex violaceo purpureo & cœruleo pallente, variegato, notata. Boerb. Ind.* Narrow-leav'd bulbous Iris, with a violet-purple and pale-blue variegated Flower.

6. XIPHION *angustifolium, petalis repandis albis, erectis dilute cœruleis, incumbentibus pallide cœrulescentibus. Boer. Ind.* Narrow-leav'd bulbous Iris, whose Flower hath white Falls; the upright Leaves of a Sky-blue, and the under ones of a pale-bluish Colour.

7. XIPHION *angustifolium, petalis repandis auris, incumbentibus pallide flavis, erectis dilute cœruleis. Boerb. Ind.* Narrow-leav'd bulbous Iris, whose Flower hath yellow Falls, and the

the upright Leaves are of a sky-blue Colour.

8. *XIPHION angustifolium, flore majore dilute cœruleo.* Narrow-leav'd bulbous Iris, with a large sky-blue Flower.

9. *XIPHION angustifolium, flore majore dilute cœruleo, lineis rubris eleganter striato.* Narrow-leav'd bulbous Iris, with a large sky-blue Flower, elegantly striped with Red.

10. *XIPHION angustifolium, flore majore albo.* Narrow-leav'd bulbous Iris, with a large white Flower.

11. *XIPHION angustifolium, flore majore albo, lineis dilute cœruleo, & pictis violaceo distincto.* Narrow-leav'd bulbous Iris, with a large white Flower, with sky-blue Stripes, and spotted with Violet.

12. *XIPHION angustifolium, flore majore saturate violaceo.* Narrow-leav'd bulbous Iris, with a large deep violet-colour'd Flower.

13. *XIPHION angustifolium, flore majore, petalis repandis dilute cœruleis, erectis saturate violaceo.* Narrow-leav'd bulbous Iris, with a large Flower, whose Falls are of a Sky-blue, but the upright Petals are of a deep-violet Colour.

14. *XIPHION angustifolium, flore majore dilute cœruleo, petalis repandis flavis.* Narrow-leav'd bulbous Iris, with a large sky-blue Flower, with yellow Falls.

15. *XIPHION angustifolium, flore majore saturatius violaceo, striis rubris eleganter variegato.* Narrow-leav'd bulbous Iris, with a deep violet-colour'd Flower, beautifully striped with Red.

16. *XIPHION angustifolium, flore majore, petalis repandis dilute cœruleo, erectis flavo.* Narrow-leav'd bulbous Iris, whose Flower hath pale-blue Falls, but the upright Leaves are of a yellow Colour.

There are many other Varieties of this Flower, which have been of late Years obtain'd from Seeds: their Numbers are every Year so much increas'd that way, that it would be endless to enumerate them all; therefore I shall proceed to their Culture; in which, I shall first begin with the Method of raising them from Seeds, that being the way to obtain new Varieties.

Having procured a Parcel of Seeds from good Flowers, the Beginning of September, you should provide some flat Pans or Boxes, which must have Holes in their Bottoms to let the Moisture pass off; these should be fill'd with fresh light sandy Earth, and the Seeds sown thereon pretty thick, observing to scatter them as equally as possible; then cover them over about half an Inch thick with the same fresh light Earth, and place the Boxes or Pans where they may have the morning Sun till Eleven o'Clock; and if the Season should prove very dry, they must be now-and-then refresh'd with Water.

In this Situation they may remain until the Middle of October, when they should be remov'd into a more open Position, where they may have the full Sun most Part of the Day; in which Place they must abide all the Winter, observing to keep them clear from Weeds and Mofs, which, at this Season, are very apt to spread over the Surface of the Earth, in Pots, when they are exposed to the open Air.

In the Spring the Plants will appear above-ground; when, if the Season is dry, they must be now-and-then refresh'd with Water, and constantly kept clear from Weeds; and as the Season advances, and the Weather becomes warm, they should be again remov'd into their former shady

shady Situation, where they may enjoy the morning Sun only. When the Plants begin to decay (which will be in *June*), they must be cleared from Weeds, and dead Leaves, and some fresh Earth sifted over them about half an Inch thick, still suffering them to abide in the same Situation all the Summer-season; during which time they will require no farther Care, but to keep them clear from Weeds, until the Beginning of *October*; when they must be again removed into the Sun, and the Surface of the Earth lightly taken off, and some fresh Earth sifted over them.

In this Place they must remain all the Winter, as before; and in the Spring they must be treated as was directed for the former Year.

When the Leaves are decay'd, the Bulbs should be carefully taken up (which may be best done by sifting the Earth through a fine Sieve); and a Bed or two of good fresh light Earth should be prepared, into which the Bulbs must be planted, at about three Inches asunder each Way, and three Inches deep. These Beds must be constantly kept clean from Weeds and Moss; and in the Spring, just before the Plants come up, the Surface of the Beds should be stirr'd, and some fresh Earth sifted over them about half an Inch thick, which will greatly strengthen the Roots.

During the Spring and Summer they must be constantly weeded; and at *Michaelmas* the Earth should be again stirr'd, and some fresh sifted over the Beds again, as before; observing in Winter and Spring still to keep the Beds clean, which is the whole Management they will require; and in *June* following the greatest Part of the Roots will flower; at which time you should care-

fully look over them, and put down a Stick by all those whose Flowers are beautiful, to mark them; and as soon as their Leaves are decay'd, these Roots may be taken up to plant in the Flower-garden amongst other choice Sorts.

But the Nursery-beds should still remain; observing to keep them clear from Weeds, as also to sift fresh Earth over them, as was before directed; and the following Season the remaining Part of the Roots, which did not flower the foregoing Season, will now shew their Blossoms; so that you may know which of them are worth preserving in the Flower-garden, which should now be mark'd; and when their Leaves are decay'd, they must be taken up, and planted, with the other fine Sorts, in an East Border of fresh light Earth; but the ordinary Sorts may be intermix'd with other bulbous-rooted Flowers in the large Borders of the Pleasure-garden, where, during the Continuance in Flower, they will afford an agreeable Variety.

But after these choice Flowers are obtain'd from Seeds, they may be increased by Off-sets, as other bulbous Flowers are. These Off-sets should be planted in a separate Border from the blowing Roots, for one Year, until they have Strength enough to produce Flowers, when they may be placed in the Flower-garden with the old Roots.

These Bulbs need not be taken up oftener than every other Year; which should always be done soon after their Leaves decay, otherwise they will send forth fresh Fibres, when it will be too late to remove them: nor should they be kept long out of the Ground; a Week or a Fortnight is full enough; for when they are kept longer, their Bulbs are sub-

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jest to shrink, which causes their Flowers to be weak the following Year.

The Earth which the Flowers thrive best in, is a light sandy Loam; and if it be taken from a Pasture-ground, with the Sward, and laid in an Heap until the Grass is thoroughly rotted, it will be still better; for these Bulbs do not delight in a rich dunged Soil: nor should they be planted in a Situation where they may be too much exposed to the Sun; for in such Places their Flowers will continue but a few Days in Beauty, and their Roots are apt to decay; but in an East Border, where they have the Sun until Eleven of the Clock, they will thrive and flower extremely well, especially if the Soil be neither too wet, nor over-dry. From the most beautiful of these Flowers should Seeds be saved, and sown every Year; which will always furnish new Varieties, some of which will greatly exceed the original Kinds.

The *Persian Iris* is greatly esteemed for the Beauty and extreme Sweetness of its Flowers, as also for its early Appearance in the Spring, it generally being in Perfection in February, or the Beginning of March, according to the Forwardness of the Season, at which time there are few other Plants in Beauty.

This may be propagated by Seeds, in the same manner as the other Sorts; but the Boxes in which they are sown, should be put under a Garden-frame in Winter, to shelter them from hard Frost; because, while the Plants are young, they are somewhat tender. From the Seeds of this Kind I could never obtain any Varieties, their Flowers being always the same.

These Plants are also propagated by Off-sets, in the same manner as

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the other Sorts; but their Roots should not be transplanted oftener than every third Year: nor should they be ever kept out of the Ground long; because their Roots will intirely decay in a short time, so as not to be recover'd again. This Sort was formerly more common in the Gardens near London than at present; which, I suppose, has been occasion'd by the keeping the Roots above-ground too long, which destroyed them.

XYLON, The Cotton Plant.

The Characters are;

The Flower consists of one Leaf, cut into several Segments almost to the Bottom; and is of the expanded Bell-shape: from the Centre rises an hollow pyramidal Tube, adorned and loaded, for the most part, with Chives: from the Empalement shoots up the Pointal, fixed like a Nail in the Bottom of the Flower, and out of the Tube; which is afterward changed into a roundish Fruit, divided into four or more seminal Cells, gaping at the Top, and inclosing Seeds cover'd over with, and wrapped-within, that soft ductile Wool, commonly known by the Name of Cotton.

The Species are;

1. XYLON, *sive Gossypium herbaceum*. J.B. Herb or Shrubby Cotton.

2. XYLON *Americanum præstantissimum, semine virescente*. Ligon. The most excellent American Cotton, with a greenish Seed.

3. XYLON, *sive Gossypium frutescens annum, folio vitis ampliori quinquefido, Insulæ Providentiæ*. Pluk. Phyt. Annual shrubby Cotton of the Island of Providence, with a large quinquefid Vine leaf.

4. XYLON *arborescens*. J. B. The Tree-cotton.

5. XYLON *arborescens, flore flavo*. Tourn. Tree-cotton, with a yellow Flower.

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There are several other Varieties of this Plant in the warm Parts of the *East* and *West-Indies*, where they grow in great Plenty; some of which have been observed by the Curious in Botany; but others have escaped their Notice: however, these being what I have observed growing in the *European* Gardens, I shall not trouble the Reader with an Enumeration of the other Varieties.

The first Sort here mention'd is cultivated plentifully in *Candia*, *Lemnos*, *Cyprus*, *Malta*, *Sicily*, and at *Naples*; as also between *Jerusalem* and *Damascus*, from whence the Cotton is brought annually into these Northern Parts of *Europe*. It is sown upon tilled Grounds in the Spring of the Year, and cut down, and reaped, in Harvest, as Corn with us. The Ground must be tilled and sown again the succeeding Year, and manag'd in such sort, as we do the Tillage for Corn, and other Grain. It is an annual Plant, perishing when it hath perfected its Fruit.

This Cotton is the Wool which incloses or wraps up the Seeds, and is contained in a kind of brown Husk or Seed-vessel, growing upon this Shrub; for it is from this Sort that the vast Quantities of Cotton are taken, which furnish our Parts of the World: it is brought from the Islands, where the Natives take great Care of its Culture. There are several Sorts of Cotton sold, which chiefly differ according to the Countries from whence they come, and the various Preparations made of them: the first is the Cotton in the Wool; that is to say, that which comes from the Shell, from which only we take the Seed: these Cottons come from *Cyprus*, *Smyrna*, &c. The second is the Cotton in the Yarn, which comes from *Damascus*. The *Jerusalem* Cottons, which are called

Bazars, and are the best which are sold. The second and third Sorts are also annual: these are cultivated in the *West-Indies* in great Plenty. But the fourth and fifth Sorts grow in *Egypt*; these abide many Years, and often arrive to be Trees of great Magnitude, from which the Inhabitants are annually furnished with great Quantities of Cotton. One of these Trees has a purplish, and the other a yellow Flower; which, I believe, is the only Difference between them.

The first Sort, which is what the Inhabitants of the *Greek* Islands cultivate, produces small Pods, which contain but a small Quantity of Cotton; therefore is not so well worth cultivating as some of the other Sorts; nor is the Staple of it so fine. The Sort which produces the largest Heads, and the finest Cotton, of any I have yet seen, is the second Sort; but the Cotton of this so closely adheres to the Seeds, as to render it very difficult to separate them from it; which has occasion'd the Inhabitants of *America* so much Trouble, as to make them inclinable to give up the Culture of this Sort; but could a Gin be invented, whereby the Seeds could be readily taken out, this Sort of Cotton might become a very beneficial Plant to the Inhabitants of *Carolina*.

There are some other Kinds of Cotton in the *East-Indies*, which might be introduced into the *British* Colonies in *America*, where they would thrive as well as in their native Soil, and be a national Advantage; for the Cottons produced in *India* bear a much greater Price, than either the *Levant* or *American* Cottons, the Staple being much finer: and since the Manufacture of Cottons is at present in great Repute in *England*, and the Wear of them become general; so, if this Country

try can be supplied with the best Sort in Plenty from the *American Colonies*, it would be of great Benefit to those Places; and it might be afforded at a much cheaper Rate, than is now paid for it.

The Seeds of two of the *India Cottons* have been very lately brought to *England*; and the Plants, which have been produced from them, have a very different Appearance from any of those Sorts which were before known here; but as they have not as yet produced either Flower or Fruit, I cannot say any thing of their Worth.

All these Sorts are preserved in the Gardens of those who are curious in collecting rare Plants: they are easily raised from Seeds (which may be obtain'd fresh from the Places of their Growth): these must be sown upon an Hot-bed early in the Spring; and when the Plants come up, they must be transplanted out each into a separate small Pot fill'd with fresh light Earth, and plung'd into a moderate Hot-bed of Tanners Bark, observing to water and shade them until they have taken Root; after which they should have Air and Water in proportion to the Warmth of the Season, and the Heat of the Bed in which they are placed: for if they are too much drawn, by keeping the Glasses close down in the Day-time, they will run up very weak and slender, so as not to be able to support themselves; and if they are too much expos'd to the Air, they will not make any Progress in their Growth.

When the Plants are so far advanced, as to fill the Pots with their Roots, they should be shaken out, and put into larger Pots; which should be fill'd with the same fresh light Earth, and again plung'd into the Hot-bed, and managed as be-

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fore. Thus, from time to time, as the Plants advance, the must be removed into larger Pots; and as the Warmth of the Season increases, they should have a greater Share of Air; and when they are too tall to continue under the Glasses of the Hot-bed-frame, they must be removed into the Stove, and placed in the Tan-bed, amongst other tender Exotic Trees and Shrubs; in which Place the annual Sorts will produce their Flowers in Autumn; but they rarely produce Pods in this Country.

The second Sort has more generally ripen'd in *England* than the other; and the Seeds which have been ripened here, have always succeeded better, than those which have been obtained from abroad.

The Tree-kinds must be continued in this Bark-stove all the Winter; and if they are placed with the Allspice, Sea-side Grape, and such other *West-Indian* Trees, observing to keep the Air of the House about ten Degrees above the temperate Heat mark'd on the Botanical Thermometers, they will thrive very well, provided they are often refresh'd with Water.

XYLON ARBOREUM. *Vide* Ceiba.

XYLOSTEON, Upright Honey-suckle.

The Characters are;

The Flower consists of one Leaf, is tubulous, and divided into several Parts at the Top, and rests on the Empalement; these are for the most part produced by Pairs on the same Foot-stalk: The Empalement afterward becomes a soft double Fruit or Berry, inclosing compressed roundish Seeds.

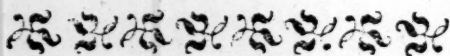
There is but one Species of this Plant at present known; viz.

XYLOSTEON *Pyrenaicum*. *Inst. R.*
H. *Pyrenean* Upright Honey-suckle.

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This Plant grows wild on the *Pyrenean Mountains*, and is separated from the *Chamaecerasus*, by Dr. *Tournefort* on account of the Shape of its Flower, which differs so little from the Flowers of those Plants, that it doth not deserve to be removed from them; since the Fruit agrees perfectly with those of that Genus.

It grows about three or four Feet high, and divides into many Branches, after the same manner as the other Upright *Honeysuckles*; the Flowers are small, and come out but sparsely on the Branches, so do not make any great Appearance. The usual Time of its flowering is in *February*, about the same time as the *Mexereton*; wherefore it may be admitted to have a Place in Gardens, amongst other hardy Exotic Shrubs, in order to make a Variety. This Plant may be propagated by Cuttings, which should be planted at *Michaelmas*, on a shady Border, and in a strong loamy Soil; where, if they are duly watered in dry Weather, and kept clear from Weeds, they will make good Roots by the following *Michaelmas*, when they may be removed to the Places where they are design'd to remain, which should be in a strong loamy Soil, and in a cool shady Situation. For if these Plants are planted on a light dry Soil, and in an open Situation, they will not live through one Summer, unless they are plentifully watered in dry Weather; and, even with this Care, they will make but little Progress.



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YEW-tree. *Vide Taxus.*

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YUCCA, The Indian Yucca, *wulgo*.

The Characters are;

It hath the Appearance of an Aloe, the Leaves ending in a sharp Point, but will grow in the Habit of a Tree: the Flower consists of one Leaf, which is bell-shaped, cut into six Segments, and naked: these are produc'd on long Spikes: the Ovary, which is in the Centre of the Flower, afterward becomes a tricapsular Fruit, as in the Aloe.

The Species are;

1. *YUCCA folis aloes. C. B. P.*
The common Yucca.

2. *YUCCA foliis filamentos. Moriff.*
Yucca with Threads growing from the Leaves.

3. *YUCCA Caroliniana arborescens angustifolia, marginibus vix serratis.*
The narrow-leav'd Carolina Yucca, with Leaves scarcely ferrated on the Edges.

The first of these Plants is pretty hardy, and, when grown strong, will endure the Cold of our ordinary Winters in the open Air very well; provided it be planted in a dry Soil. This Sort seldom rises with a Stem above three Feet high, which is garnish'd with Leaves almost to the Ground. The Leaves of this are broad, and of a dark-green Colour, ending in a sharp black Spine. This Sort frequently produces its Spikes of Flowers, which grow very sparsely on the Stalks, and the Spike of this Sort branches out on every Side to a considerable Distance; which renders it less beautiful than the Flowers of the other Kinds.

The third Sort is not so hardy as the two other, so must be housed in Winter; for they will not live thro' the Winter in the open Air. This Sort will rise with a Stem five or six Feet high; the Leaves are narrower, stiffer, and of a paler Green, than are

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are those of the Common Sort. The Flowers are of a fine purplish Colour on their Outside, and a clear White within; which are produc'd in a long, close Spike, and make a very beautiful Appearance; but these do not flower oftener than once in four or five Years, which is always in Autumn; so that they never produce any Seeds in this Country.

The threaded Sort is not so common as the others in the *English* Gardens; but as it is a Native of *Virginia*, it might easily be procur'd in Plenty from thence. The *Carolina* Sort hath been rais'd of late Years from Seeds which came from thence, and is now pretty common in *England*.

All these Plants are either propagated by Seeds, when obtain'd from Abroad; or else from Off-sets or Heads taken from the old Plants, after the manner of Aloes.

When they are rais'd from Seeds, they should be sown in Pots fill'd with fresh light Earth, and plunged into a moderate Hot-bed, where the Plants will come up in five or six Weeks after; and when they are two or three Inches high, they should be transplanted each into a separate small Pot filled with fresh light Earth, and plung'd into the Hot-bed; where the Plants should have Air and Water in proportion to the Warmth of the Season, and the Bed wherein they are plac'd.

In *July* they should be enured, by degrees, to bear the open Air; into which they must be remov'd, to harden them before Winter; placing them in a well-shelter'd Situation, where they may remain until the Beginning of *October*, when they must be removed into the Green-house, where they may be ranged amongst the hardier Sorts of Aloes, and should be treated in the same

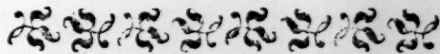
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manner as hath been already directed for them; to which the Reader is desired to turn, for further Instructions.

When these Plants have acquired Strength, those of the common Sort may be afterward turned out into a warm Border, where they will endure the Cold of our ordinary Winters very well; but the other Sorts must be kept in Pots, that they may be shelter'd in Winter; and if they are treated in the same way as the large *American Aloe*, they will do very well.

The Off-sets taken from the old Plants should be laid in a dry Place, for a Week or ten Days, before they are planted, that their Wounds may heal; otherwise they will be subject to rot with Moisture.

As the second and third Sorts do not put out Off-sets so plentifully as the first, so, in order to propagate them, the Heads of the Plants may be cut off in *June*; and after having laid the wounded Part to dry, the Heads may be planted, which will soon take Root, provided the Pots are plunged into a moderate Hot-bed; and this cutting off the Heads will occasion the Stems to put out Suckers, which they seldom do without; so that, by this Method, the Plants may be obtain'd in Plenty.



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Z ACINTHA, Warted Succory.

The Characters are;

It hath a fuscous Flower, consisting of many Half florets, constantly resting on the Embryoes, and included in a scaly Empalement: the Empalement afterward becomes a furrowed

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Head, whose single Parts, or Capsulæ, have swelling Seeds, which are channel'd.

We have but one Species of this Plant; viz.

ZACINTHA five cichorium verrucarium. Matth. Warted Succory.

This Plant grows abundantly in the Island of *Zant*, from whence it obtained the Name; it also grows wild in several other warm Countries: but in *England* it is preserved in the Gardens of some Persons who are curious in Botany, for the sake of Variety; there being little Beauty or Use at present known in this Plant.

It is an annual Plant, which perishes soon after the Seeds are ripe; therefore must be sown every Year, or the Seeds permitted to scatter on the Ground in Autumn, which will come up in the Spring, and furnish a Supply of Plants more certainly than when the Seeds are sown in that Season; for the Seeds which are sown in the Spring, will remain in the Ground a whole Year before the Plants come up; and sometimes they intirely miscarry; whereas those Seeds which scatter in Autumn, or are sown at the same Season, rarely fail. When the Plants are come up, they will require no other Care, but to thin them where they are too close, so as to leave them about six or eight Inches asunder; and after this to keep them clear from Weeds. In *June* these Plants will begin to flower, and their Seeds will ripen about the End of *August*, or the Beginning of *September*.

The Flowers of this Plant are small, and generally produced singly from the Divarications of the Branches, somewhat after the manner of Succory; the Flowers are of a yellow Colour, and resemble those of Hawkweed. After the Flowers

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are past, the Empalement swells to a furrowed Head, somewhat resembling Warts or Excrescences, in which the Seeds are included.

When the Seeds of this Plant are sown in the Spring, it should be done in Drills made about two Feet asunder; and when the Plants are come up, they should be thinned to the Distance of six Inches in the Rows; because they do not thrive very well when they are transplanted, so that they should remain in the Places where they are sown; and if they are kept clear from Weeds, they will require no other Care.

ZANTHOXYLUM, The Pellitory, or Tooth-ach-tree.

The Characters are;

The Empalement of the Flower is of one Leaf, divided into five Parts at the Top: the Flower is composed of five Petals, having a Pointal in the Centre, which is attended by five Stamina: the Pointal afterward becomes a roundish compressed Fruit, divided into four Cells, in each of which is one roundish hard shining Seed.

We know but one Species of this Genus; viz.

ZANTHOXYLUM spinosum, lentiscoli longioribus foliis, euonymi fructu capsulari, ex insula Jamaicensi. Pluk. Phyt. Pellitory, or Tooth-ach-tree.

This Plant grows on the Seacoasts of *Virginia* and *Carolina*; but in the latter it is much more plentiful than in the former; and it grows larger in *South Carolina*, than in the Northern Parts of *America*. The usual Height of this in *Carolina* is about eighteen or twenty Feet; the Stem is woody, but not very hard; the Bark of the large Stems is closely beset with pointed Protuberances, some of which are as large as Walnuts; so that the whole Stem has the Appearance of a ragged Staff; which has occasion'd its being

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ing called *Hercules's Club*, by some of the Inhabitants of *America*. The young Stems, as also the Branches, are armed with sharp Thorns. Toward the Top of the Stem, the Leaves are produced without Order. These have long Footstalks, garnished with three, four, or five Pair of *Pinnae*, terminated by an odd Lobe: these are oblong, and end in a sharp Point. Between the Leaves, the Flowers are produc'd in loose Panicles, which are white, having red Summits in the Middle. These Flowers are succeeded by round Capsules, each being divided into four Cells, containing so many shining black Seeds. The Leaves, when bruised, smell like those of the Orange-tree; the Bark and Seeds have a strong aromatic Scent, and are very pungent to the Taste. These are frequently used by the Inhabitants of the Country to cure the Tooth-ach; from whence the Plant had the Name applied to it.

This Plant is propagated by Seeds, which must be procured from the Places of its natural Growth; for it doth not produce Seeds in *England*. These Seeds must be sown in Pots filled with light Earth, and plunged into a moderate Hot-bed; where, sometimes, the Seeds will come up in six or eight Weeks time; but it often remains in the Ground a whole Year: so that if the Plants should not appear the first Season, the Pots should be shelter'd in the Winter, and, early the following Spring, plunged into a fresh Hot-bed; which will bring up the Plants, if the Seeds are good. When the Plants are four or five Inches high, they should be enured to the open Air by degrees; and they may be removed abroad in *June*, where they may remain till *October*; at which time the

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Pots should be placed under a Frame, to be screened from hard Frost; but they must have free Air in mild Weather.

These Plants should remain in the Seed-pots until the following Spring, when they should be transplanted each into a separate small Pot; and if they are then plunged into a moderate Hot-bed, it will greatly promote their Growth; but they should be harden'd again to the open Air, and placed abroad in Summer, in a shelter'd Situation; and in Winter they must be again placed under a Frame, and so treated for two or three Years, till the Plants have obtain'd Strength; then, in the Spring of the Year, some of the Plants may be shaken out of the Pots, preserving a Ball of Earth to their Roots, and planted in the full Ground, on a shelter'd Situation, where they will live through the ordinary Winters without Shelter; but as they are sometimes destroyed by hard Frost, it will be proper to keep some Plants in Pots, to be shelter'd in the Winter, to preserve the Kind.

These Plants shed their Leaves in Winter, and the Leaves seldom come out till *April* following. They delight in a loose rich Soil, not too wet, nor very dry: in the one, they are often kill'd by Moisture in Winter; and in the other, they frequently die in Summer, unless they are duly watered.

ZINZIBER, Ginger.

The Characters are;

The Flower (for the most part) consists of five Leaves, which are shaped somewhat like those of the Iris: these are produced in an Head or Club, each coming out of a separate leafy Scale: the Ovary afterward becomes a triangular Fruit having three Cells, which contain the Seeds.

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The Species are ;

1. ZINZIBER. C. B. P. The common Ginger.

2. ZINZIBER *latifolium sylvestre*. H. L. Broad leav'd wild Ginger, or Zerumbeth.

The first of these Plants is cultivated in the warm Parts of the *West-Indies* in great Plenty ; from whence we are annually furnish'd with the dried Roots for Use. The second Sort is most common in the *East-Indies*, though it grows wild in some Parts of the *West-Indies*. There are small Quantities of the Roots brought into *Europe* for medicinal Use ; but it is never used in Kitchens as the other.

These Plants are preserved as Curiosities in the Gardens of those who delight in rare Plants. They are both propagated by parting of their Roots : the best time for which is in the Spring, before they begin to shoot ; when each large Shoot may be divided into several Parts ; observing always to preserve two or three Eyes to each Piece. These should be planted into Pots filled with rich light Earth, and plunged into an Hot-bed of Tanners Bark, where they must be frequently refreshed with Water : and in hot Weather the Glasses should be raised with a Brick, to give them Air in proportion to the Warmth of the Season, and the Heat of the Bed in which they are placed : for when their Leaves are come up, if they are too much drawn, they will grow very tall and weak, and the Roots will make but very indifferent Progress. But when they have a due Proportion of Heat, Moisture, and free Air, their Roots will thrive so fast, as, in one Season, from a small Head, to spread over a large pot, and sometimes will produce Flowers in this Country.

But these Plants must be constantly kept in an Hot-bed of Tanners

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Bark ; for they are too tender to endure the open Air in *England* in the warmest Part of Summer ; and in Winter they must be placed in a Bark stove : for although their Leaves decay in Autumn, and their Roots seem to remain in an unactive State most Part of the Winter ; yet, if they are not preserved in a very warm Place during that Season, they will intirely rot ; as I have more than once observ'd. Nor do these Roots abide the Winter so well when placed upon Boards in the warmest Stove, as when they are plunged in the Bark-bed, though they are preserved in the same Degree of Warmth ; which I conceive to be owing to the Moisture of the Bark, which, in Fermentation, ascends, and entering the Holes at the Bottom of the Pots, affords an agreeable Nourishment to the Roots, preserving them always plump and full ; whereas those in a dry Stove often shrink for want of Moisture, and so, many times, decay : for it is not very safe to give them much Water after their Leaves are decay'd ; because they are very apt to rot with too much Moisture at that Season.

When the Leaves are decay'd, is the proper Time to take up these Roots ; but those that are design'd to plant again, should not be disturb'd till the Spring, just before they begin to shoot ; which, as was before observ'd, is the best time to transplant them ; because they soon after send forth their Fibres, which will preserve them from rotting.

ZIZIPHORA.

The Characters are ;

The Flower hath a long rough cylindrical Empalement, which is slightly cut into five Parts at the Brim : the Flower is of the labiated Kind, having a long Tube : the Upper-lip is oval, erect, and bordered : the Under-lip

lip (or Beard) is divided into three equal Segments: in the Centre is placed the square Pointal, attended by two Stamina, supporting oblong Summits: each Flower is succeeded by four angular Seeds.

The Species are;

1. *ZIZIPHORA foliis lanceolatis, floribus terminatricibus.* Lin. Hort. Cliff. Dwarf Indian Field-basil.

2. *ZIZIPHORA foliis lanceolatis, floribus lateralibus.* Lin. Hort. Cliff. Hairy Eastern Field-basil, with Hyfop-leaves.

These are both annual Plants, of humble Growth: the first is a Native of the Northern Parts of America: the second was discover'd by Dr. Tournefort, in the Levant, from whence he sent the Seeds to the Royal Garden at Paris. Both these Plants have been ranged in the Genus of *Clinopodium*, by all the Botanists before Dr. Linnaeus; who has separated them, not only from that Genus, but also from their Class, on account of their Flowers having each but two Stamina, whereas the other Species have four. But as they have passed under the Title of *Clinopodium* so long, I have given them the English Name of Field-basil, for want of one more proper.

The Seeds of these Plants may be sown in a Border of light Earth, either in Spring or Autumn. Those Plants which come up in the Autumn, will abide through the Winter, and will grow much larger than those which come up in the Spring; though neither of them will rise above six Inches high. The Seeds should be sown where the Plants are to remain; for they do not thrive well when they are transplanted, unless the Earth remains to their Roots. These have a pretty strong aromatic Scent, somewhat resembling Summer-favory; but as they are

Plants of little Beauty, they are seldom cultivated but in Botanic Gardens, for Variety-sake.

The Seeds of those Plants which come up in the Autumn, will be ripe in July; but those of the Spring-plants will not ripen till the Latter-end of August, when, if the Seeds are permitted to scatter, the Plants will come up, and require no farther Care, but to clear them from Weeds, and thin them where they are too close.

ZIZIPHUS, The Jujube.

The Characters are;

The Flower consists of several Leaves, which are placed circularly, and expand in form of a Rose: out of whose Empalement rises the Pointal, which afterward becomes an oblong fleshy Fruit shaped like an Olive, including an hard Shell divided into two Cells, each containing an oblong Nut or Kernel.

The Species are;

1. *ZIZIPHUS.* Dod. The common manured Jujube.

2. *ZIZIPHUS sylvestris.* Tourn. The wild Jujube.

3. *ZIZIPHUS quæ Jujube Americana spinosa, loti arboris foliis & facie, fructu rotundo parvo dulci.* Hort. Beaumont. Prickly American Jujube, with Leaves like the Nettle tree, and small round sweet Fruit commonly call'd, in the West Indies, Mangosteen.

4. *ZIZIPHUS argentea Zeylanica, spinis carens, Walæmbilla Zeylanensibus dicta.* C. B. P. Silver-leav'd Jujube of Ceylon, without Spines, commonly called *Walæmbilla*.

The first of these Plants is cultivated in the Gardens of Italy, and the South Parts of France, from whence the Fruit was formerly brought into England for medicinal Use: but of late Years it has been very little used in the Shops, so that there is rarely

any of it brought over at present.

In those warm Countries they preserve the Fruit for the Table in the Winter-season, when few other Kinds are in Perfection; at which time these, and Services, and some other Sorts, furnish their Desserts.

The Fruit is somewhat like a small Plum; but has not a great Share of Flesh upon the Stone; yet, having an agreeable Flavour, it is by some Persons greatly esteem'd.

The second Sort grows wild in the Hedges in the South of *France*, *Italy*, and *Spain*; but in these colder Countries it is preserv'd in the Gardens of those who are curious in collecting the various Kinds of Trees and Shrubs.

These Plants may be propagated by putting their Stones into Pots of fresh light Earth, soon after their Fruits are ripe; and in Winter they should be placed under a common Hot-bed-frame, where they may be shelter'd from severe Frost. In the Spring these Pots should be plunged into a moderate Hot-bed, which will greatly facilitate the Growth of the Seeds; and when the Plants are come up, they should be enured to the open Air by degrees, into which they must be remov'd in *June*, placing them near the Shelter of an Hedge; and in dry Weather they must be frequently refresh'd with Water.

In this Situation they may remain until the Beginning of *October*, when they must be removed either into the Green-house, or placed under an Hot-bed-frame, where they may be defended from Frost; but should have as much free Air as possible in mild Weather.

During the Winter-season they should be now-and-then refresh'd

with Water; but after their Leaves are fallen (as they always shed them in Winter), they must not be over-watered; which would rot the tender Fibres of their Roots, and cause the Plants to decay.

In *March*, just before the Plants begin to shoot, they should be transplanted, each into a separate small Pot fill'd with fresh light Earth; and if they are plunged into a moderate Hot-bed, it will greatly promote their taking Root; but in *May* they must be enured to the open Air by degrees, into which they should be soon after removed.

Thus these Plants should be managed while young, at which time they are tender; but when they are three or four Years old, they may be planted in the full Ground, where, if they have a dry Soil, and a warm Situation, they will endure the Cold of our ordinary Winters very well.

These Plants may be also propagated by Suckers, which the old ones many times send forth from their Roots; but these are seldom so well rooted as those produc'd from Seeds, or seldom make so good Plants; for which Reason they are but rarely propagated that way.

The third Sort is very common in *Barbados*, *Jamaica*, and the other warm Parts of *America*; from whence I have several times received the Seeds, which generally rise very freely on an Hot-bed; but the Plants, being very tender, require the Help of a Bark-bed constantly, without which they will not make any Progress; and in Winter they must be placed in the Bark-stove, where, if they are frequently refreshed with Water, they will thrive extremely well. There are several Plants of this Kind in the Gardens of the Curious; but I have not observed

served any to produce Flowers as yet.

The fourth Sort was brought into *England*, from some curious Garden in *Holland*, many Years ago. This was raised in the Gardens of Mynheer *Van Beaumont*, from the Seeds which he received from *Ceylon*, and since hath been communicated to many curious Persons in *Holland* and *England*. There is no way as yet found successful to propagate this Plant, but from Seeds; which being never produc'd in these cold Countries, and but rarely brought

from abroad, is the Reason it is not very common in the *European* Gardens at present.

This is preserv'd in Pots of fresh light Earth, and placed in a Stove in Winter, where it may be kept in a moderate Warmth, and must be frequently refreshed with Water, with which Culture the Plants will thrive very well; but I have not seen them produce any Flowers as yet in *England*, though there have been several pretty old Trees in the Gardens at *Hampton-Court*, when the Exotic Plants were kept up there.





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A

T A B L E

*Of the English Names of the Plants mention'd
in the DICTIONARY, referring to
their Latin Names.*

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 Winter-cherry. See <i>Alkekengi</i>
 Winter-cress. See <i>Sisymbrium</i>
 Winter-green. See <i>Pyröla</i>
 Witch-hazel. See <i>Ulmus</i> and <i>Ha-
memelis</i>
 Woad. See <i>Isatis</i>
 Wolf's-bane. See <i>Aconitum</i>
 Woodbine. See <i>Caprifolium</i>
 Woody-nightshade. See <i>Solanum</i>
 Wood-roof. See <i>Asperula</i>
 Wood-sage. See <i>Scordium</i>
 Wood-sorrel. See <i>Oxys</i>
 Wormwood. See <i>Absinthium</i>
 Woundwort. See <i>Vulneraria</i>
 Woundwort. See <i>Solidago</i>
 Woundwort of Achilles. See <i>Mille-
folium</i></p> |
|---|--|

Y

Y A M S. See *Ricophera*
 Yarrow. See *Millefolium*
 Yarrow, the Water. See *Hottonia*.

F I N I S



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